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I—The High Cost of Economic Development†

By MARTIN BRONFENBRENNER*

Preface

IT is or should be a commonplace that economic policies, like economic goods, have their costs in efforts and sacrifices sustained or in alternatives foregone. To mention a hoary example, tariff protection finds its costs in higher prices to domestic consumers and in reduced foreign demand for the exports of the protecting country. More recently, full employment as a direct aim of policy has been found, to the surprise of certain of its advocates, to involve costs of inflation quite generally and in certain cases costs of reduced productivity as well.

The costs of "economic development," however, are different. They seem typically to be underestimated, especially in the less developed countries of the world. Advocacy tends to make of development the exception proving the rule that economic policies involve economic costs. That is to say, acceleration of development, especially along industrial lines, is proposed at times as the universal nostrum and remedy for all the ills that primitive economies are heir to, quite as though development were completely costless or at least as though no reasonable man could doubt any amount of development at any speed to be worth whatever the costs may be. The costs themselves remain for the most part un-analyzed.

Among trained economists in advanced countries, a majority probably accept the reasoned judgment of Professor Boulding when he considers "economic progress" not only an end in itself but also the supreme (albeit not the exclusive) goal of economic life.[1] (While by no means ignoring a number of the economic and social costs of development, Boulding quotes Adam Smith with approval: "The progressive state is in reality the cheerful and the hearty state to all the different orders of society. The stationary is dull; the declining, melancholy.")

In popular thinking, economic growth and development have come to figure as universal solvents or universal masks. Rather than involving costs of their own, they dissolve or conceal the costs of other economic policies, however erroneous.

† Part II of this article will appear in the August 1953 issue of this journal.

* Associate Professor of Economics, University of Wisconsin.

[1] Kenneth E. Boulding, "Economic Progress as a Goal of Economic Life," in A. Dudley Ward (ed.), *Goals of Economic Life* (New York: Harpers & Bros., 1953)pp. 76,83.

The effects, for example, of price-rigging and of wage-rigging, in lowered output and employment, float away and vanish in the mainstream of economic development, leaving no impression outside the diagrams and equations of static economics. Growth, for restrictionists, is like the earth for Molière's doctors of medicine, covering their failures while the sun shines on their successes.

Fearing as I do that this view is too one-sidedly sanguine, I hope in this essay to assemble and present in broad outline the economic and associated social costs which should more commonly be charged to economic development than they now are. Despite an inevitable atmosphere of the cold shower and an inevitable aftertaste of gall and wormwood, the moral of the tale should not be read as preference for a noble savage economy a la Rousseau, nor yet for a hermitage on the shores of Walden Pond. The costs of *non*-development may exceed even those of development—I do not propose to state the contrary. Mine is but the more modest proposal that each country weigh more carefully the costs of its development plans. It may find these costs increasing more than proportionately to the mass times the velocity of the plans themselves.

Assembly and presentation of these costs should not be taken to imply their inevitability. We shall consider also the various schemes and proposals entering but not originating in the United Nations and its economic subsidiary organizations for rendering development substantially costless in the future, whatever the record of the past.[2]

[2] Mission of the United Nations makes this an appropriate point to acknowledge my debt to the Secretariat of the Economic Commission for Asia and the Far East (ECAFE). Many of the ideas in this paper were developed at ECAFE headquarters in Bangkok, Thailand, in discussions with my colleagues ancillary to my duties as economic consultant. Neither ECAFE as such nor any of its staff members, however, are implicated in any of my conclusions or errors.

The Classical Costs

What made the "dismal science" so dismal? Two features of the English classical doctrines, more than any others. One is the Malthusian principle of population with its corollary, the "Iron Law" or subsistence theory of wages. The other is the "tendency of profits to a minimum," which survives today as a keystone in the writings of economists as diverse as Marx and Keynes. And what, in classical economics, was the principal offset to these dismal tendencies—the principal brake and decelorator of the impending "stationary state" and the principal hope for raising the subsistence level of the working classes? What indeed, but the processes of economic growth and change, including both the development of inventions like railroads and textile machinery and likewise the emigration of "redundant" population to America, Australia, and elsewhere? (Characteristically enough, the possibility of *capital* "redundance" was left for the dissenters to discover and analyze.)

By comparison with later writings, economic development appeared to the classical economists relatively costless. They recognized only a limited set of development costs, which I shall call "the classical costs," and to which other costs may be added as they make their appearance in the economic literature.

The principal development cost recognized by the classical school—indeed, one might with a little exaggeration say the only social cost so recognized—was an increment of abstinence from consumption in the interest of net saving. In a stationary economy, gross saving (or

A secondary debt is also owed to another group of colleagues at Doshisha University in Kyoto, Japan, where a preliminary outline of this argument was presented to a departmental seminar in economics. Professors Etsuji Sumiya and Yasuma Takata were particularly helpful in their suggestions. At Wisconsin the argument was developed further under the criticisms of Mr. Pao Lun Cheng, Professors P. T. Ellsworth, and Kenneth H. Parsons.

abstinence) is of course required for the maintenance of the existing capital stock, but the volume of such saving is naturally greater when development as well as maintenance is under way. The increment of abstinence requires compensation in the form of an increased rate of return (interest) on all savings made, not merely on the increment. The real or pain cost of abstinence to the individual savers is compensated by society as a whole in the form of these interest payments. The additional interest payments involved in net capital formation constitute the cost to society of the process of economic development, just as the additional abstinence constitutes the cost to the saving class. It would be double-counting to add the two sets of costs together, and this is not done. To the classical economists, the capital requirements of development programs are supposed to be accumulated by the process of voluntary saving as just outlined, not only in "cloud-cuckoo-land," but in historical fact as well.

In addition, certain other costs to particular segments of society or particular countries could not be ignored in the classical type of analysis. They could be and were, however, confined largely to parentheses and footnotes by the liberal and cosmopolitan predilections of the individual members of the classical school. The most famous of such cases are probably the displacement of skilled by unskilled workers when machinery is introduced, and the decline of the landlords' rent when foreign sources of cheap agricultural products are developed. In addition, the export of capital was occasionally recognized as reducing the domestic "wages fund" or, in modern terms, the domestic demand for labor. Investors in earlier processes were admittedly injured by their premature obsolescence when new ones were substituted before the older ones had been depreciated. Toll roads and canals, naturally, provided instances ready to hand at the outset of the so-called railway age. To a limited extent this illustration was even broadened to acknowledge that, under improbable but conceivable circumstances, an older country might lose from the development of a new competitor, but this heresy was largely confined to footnotes from Ricardian times forward, until the industrializations of Imperial Germany and the United States began to threaten British primacy at the end of the nineteenth century.

The widespread social, esthetic, ethical, and religious dislocations involved in the rapid displacement of pre-capitalist and pre-industrial technology were not recognized as costs at all (save by hopeless romantics), any more than were the white man's diseases which sometimes accompanied them. For these were costs involved in extension of economic liberalism and not in its limitation. Furthermore, they were borne by backward people with few or no facilities for the civilized forms of protest and remonstrance; the motive powers of economic development were almost completely immune. Nor have post-classical schools of economics (nostalgics and romantics again excepted) recognized such social costs as these. The kindest interpretation of their neglect would be to call these costs short-run ones, which would be surely cancelled and more than cancelled by economic gains within too short a span of years to merit their consideration as costs at all. This writer shares the general economistic bias, and will likewise suppress more than this bare mention of perhaps the broadest category of development cost. Where native arts and crafts and religious observances and ethical obligations are incompatible with high productivity in a machine age, they will shrivel and wither and sometimes

disappear completely. George F. Babbitt himself will miss some of them, after they are gone.

A special type of cost of economic development, which might be labelled "ideological" in the absence of a better term, was involved for economic classicism in the partial modifications of "the obvious and simple system of natural liberty" in the interest of development, especially in the industrializing countries of the European Continent and North America. Infant-industry protection is the best case in point, but the artificial and temporary monopolies fostered by the patent and trade-mark systems are of the same family. It must of course be noted that "infant-industry" protection was always a quasi-heretical doctrine recognized only grudgingly by the orthodox, while patents and trade-marks were also under sporadic attack in the interests of the unadulterated competitive system. Such concessions as were made, however, with all their ill grace, may be regarded as foretastes of the Schumpeterian arguments, to which we now turn directly, leaving Marx and the Socialist school for later treatment.

The Schumpeterian Costs

Schumpeter has long been regarded, and with reason, as the apostle or prophet of economic development. He did not achieve this unique position by minimizing in any way the costs of economic development. He seems on the contrary to have stressed them, and to have insisted that development has been worth even these prices in the past. (By inference, it should continue to be worth a similarly high price in the future.)

Schumpeter is outstanding among the minority of economists who insist that both interest and profit would, in the absence of invention and innovation, not only fall, as the classical school had maintained, but actually vanish.[3] In addition, two economic costs of development, not considered by the classical writers, have become associated with his name so intimately as to merit the title of "Schumpeterian" costs.

The first distinctively Schumpeterian cost is economic instability. To him, as to a number of other writers including most prominently D. H. Robertson, the irregularity and the clustering of developmental innovations are the principal real causes of both long waves of economic activity and ordinary business cycles under capitalism. Wilhelm Röpke and David McCord Wright have gone even further, to insist with some plausibility that these same factors will bring about cyclical disturbances in planned economies as well, unless the planners retard deliberately the introduction of innovations and spread the resulting changes more evenly over time. (Under planned economies these cyclical disturbances would presumably be confined to production, and not extend to employment. Some part of the labor force, while remaining technically employed for reasons of charity or of propaganda, would become "redundant" during "depressions," particularly in those industries which have undergone the most extreme expansion. The social costs of depression could therefore be eliminated in large part, if not the depressions themselves—a point sometimes overlooked by the more conservatively-inclined disciples of the Schumpeterian school.)

[3] Schumpeter's argument regarding interest applies to a "static" state which is likewise stationary. Not only have invention and innovation ceased, but society's capital stock remains constant. There is no necessary connection between the cessation of innovation and the cessation of growth. It is not immediately apparent in any case why a zero rate of interest should elicit precisely that amount of saving required to maintain the social capital intact—no more and no less—unless highly restrictive assumptions are introduced as to time preference and the length of human life.

The second distinctively Schumpeterian cost is monopoly, with its attendant concentrations of wealth, of income, and of social and political power. Indeed, Schumpeter achieved in the last decade of his life fame as a champion of "big-man" capitalism against the "little-man" capitalism of the neo-classical school and the American trust-busters, equal to his earlier fame as an expounder of the development process itself. The later Schumpeter, perhaps as aware of the evils of monopoly and concentration as was any trust-buster, constantly pointed out the historical correlation between size and progress. As for the patent system, he regarded this as completely inadequate protection and encouragement for the innovator in his characteristic sense, which was of course far broader than the technological inventor of patentable products or processes. He saw the evils of monopoly, including its restrictionism of output and even its occasional suppression of innovations which threatened capital values, primarily as insurance premiums for economic progress as a whole.

Schumpeter makes his case for private monopolies only, but Socialists can make for public monopoly and the grand-scale public corporation a case almost equally persuasive. Thus in Japan of the Meiji Era industrialization began when the government took over the functions of Schumpeter's innovating "entrepreneur" with regard to the first railroads, shipyards, and modern textile mills. The Japanese example is being repeated in countries developing nearly a century later. In the United States as well, to cite a country already developed, a public corporation took over what can only be described as a major developmental innovation in connection with the Tennessee Valley flood-control and power project in the 'thirties, and another in connection with atomic energy research in the next two decades.

The Marxian Costs

Economics owes to Karl Marx, probably more than to any "historical" or "institutional" economist self-styled, credit for examining the classical theory of economic development in the light of the historical facts as interpreted by himself. His special interest lay, as all economists know, in discrediting the abstinence theory of the classical economists for a more comprehensive picture of the cost of economic development, and one which reflected less credit upon the capitalist class. A chapter (XXXI) in the famous Part VIII of Volume I of *Capital*, devoted to the destruction of the abstinence theory of accumulation, for instance, ends with capital coming into the world "dripping from head to foot, from every pore, with blood and dirt." But whatever his animus, he built well; no subsequent study can ignore his work.

In some respects, the present paper is following humbly in Marxian footsteps of a century ago. I am, however, suggesting that certain factors of cost which Marx isolated apply to socialistic as well as capitalistic economic development, or at least that the transition from capitalism to socialism has not eliminated them. They can better be described, I think, as costs of development than outrages of primitive capitalism.

Examining in cursory fashion the economic history of Western Europe, of the Americas, of Australasia, and more recently of the Soviet Union and East Asia—indeed, wherever you will—we can find all or nearly all of the following six grand categories of cost. No microscope is required for their location and identification. They are not only present, they are important. They are important

not only under capitalism, but under revolutionary Socialism as well.

First among the Marxian costs is forced labor. Economic development in every country has been hastened by whips on the backs of slaves, peons and other debtors, vagrants, "sturdy beggars," convicts, war prisoners, and now "class enemies." Let us accept at full face value all accounts of the extent and of the horrors of forced labor in the uranium mines, salt mines, and pine forests of contemporary Eastern Europe, Siberia, and China. It remains hypocrisy to condemn the countries responsible without references to practices elsewhere in the world at corresponding phases and urgency of development. The "kulak" or "war ciminal" of Khabarovsk and the "special agent" of the Yangtze Valley are twentieth century equivalents of Uncle Tom and Oliver Twist, let alone the "first fleet" to Australia and the builders of the Egyptian Pyramids.

The second element of Marxian cost is direct expropriation of property, often accompanied by violence, death, and destruction in the case of resistance. The classes of property most frequently confiscated are precious metals (for working capital) and rights in mineral or agricultural land, particularly if unwritten or traditional. No type of property, however, is immune, whether it be real or personal, tangible or intangible. Property has been confiscated from a class or classes in the domestic economy to support or at least placate the remainder of the population during a period of austerity in consumption and development of capital assets. Sometimes also it can be co-ordinated directly in a central plan of development. Socialistic collectivization in the Soviet Union, land reform in China, and to a lesser extent nationalization in the United Kingdom, come immediately to mind. But the British enclosure movements, and the uncompensated liberation of the slaves after the American Civil War, are not greatly different. Property may be confiscated from aboriginal inhabitants of the domestic territory who cannot or will not develop it themselves. Witness the fate of the Indian lands in the United States, and the Negro holdings in Australia and South Africa. Property in liquid form, extorted from colonial peoples, can be transported to the homeland for economic development either there or elsewhere. This happened, for example, in Mexico, in Peru, and in India. (Premier Nehru in *The Discovery of India* tries to document and support the fervent belief of his people that they financed the British Industrial Revolution, however involuntarily, through the spoils of Bengal shipped to England by the British East India Company and its nabobs.) Property, finally, may be expropriated from previous foreign holders and used as an interest-free source of re-investment. At the close of World War II, this was the fate of German properties in Eastern Europe and Japanese properties in Korea and Manchuria; we shall not discuss the legal or moral status of the German or Japanese claims themselves. Mexico in the 'twenties and Iran in the 'fifties sought to follow similar policies with respect particularly to petroleum and mining properties held by foreigners.

These types of development costs are dwelt upon in *Capital*, where Marx selects his examples specifically to illustrate the growth of private capital in the early stages of industrial capitalism. Only these types, therefore, are Marxian in any true sense or by any direct derivation. Other social costs, however, seem allied closely to these Marxian costs proper, and more specifically to the second one, the expropriation of property.

A most common indirect form of partial expropriation of property is inflation of the currency of the developing country. If carried far enough and rapidly enough, it can result in the practically complete extinction of such property rights as are expressed in claims of fixed money value (bonds, mortgages, notes, insurance policies, and the like). A number of countries, including Japan and several of the Latin American republics, have financed the bulk of their developmental activities by this method. A technical analysis of the workings of inflation in aid of economic development will be the task of Part II of the present paper, which may be looked upon as an appendix or long footnote to this paragraph. Suffice it here, however, to stress its importance and to pass on. It is worthy of at least parenthetical notice that in the course of a social upheaval of revolutionary proportions inflation may be used deliberately to expropriate the bondholder in the same way as land reform is used to expropriate the landowner or nationalization to expropriate the stockholder. Thereupon the revolutionary state proceeds to further its development program civil and military with part of the real property confiscated. This was the pattern in the Soviet Union for a period following 1917, but has since been succeeded in most Communist-controlled countries by more direct methods of collectivization.

Income and property can also be expropriated partially through direct controls on their use, such as are often imposed in aid of economic development. Such controls are characteristic of Socialist or planned economies, as milder alternatives to confiscation. Insofar as consumption is restricted, as by rationing or by limitation of the range of consumers goods available, these controls aim at encouraging saving by default. The resulting savings, presumably, are channelled into development of one sort or another. Perhaps more important, the acquisition or use of capital goods, including foreign exchange, is often restricted for the sake of avoiding conflict with development plans. Capital flights, inventory accumulation, luxury housing, and construction of stores and amusement places are among the uses most frequently forbidden or regulated.

Special problems are associated with the treatment of capital for development projects when the capital is foreign capital, particularly when it participates on a speculative basis. The danger here may be described, with permissible exaggeration, as bilateral exploitation. Over and beyond the normal cost of lending (interest and dividends, at normal rates in each case), the process of international lending has involved both the borrowers and the lenders in abnormal costs so great as to recall Polonius' advice to Laertes: "Neither a borrower nor a lender be." To creditors, consider the tremendous losses through malinvestment, through corruption, through default, through confiscation, through "socialization." To debtors, consider the usurious interest charges, unreasonable monopoly profits, forced cession of control of home enterprises, economic and at times political colonialization. The costs involved, particularly to the developing country in the debtor position, have been especially large when the racial and cultural backgrounds of debtor and creditor countries differed widely, as for example in Africa and Asia. They have been considerably less when a firmer cultural basis existed for mutual understanding, as for example in the European investments in American and Canadian railroads. As between debtor and creditor, it is tempting to seek from a tentative

survey of the history of international finance some hurried conclusion as to who is sinned against and who is sinning, who has been the exploiter and who the exploited. Such a judgment, however, is beyond this writer's competence. Waves of debtor-exploitation in each country seem to follow upon waves of creditor-exploitation without clear balances derivable from pages of sordid history. For every Cecil Rhodes there seems to appear somewhere and eventually a Mossadegh as counter-balance, for every Mossadegh a Cecil Rhodes . . .

A final category of indirect partial confiscation is the despoliation of future generations for the sake of immediate development, through a use of natural resources which seems to the future generations unduly lavish if not positively wasteful. The timber of the Northeastern and North Central United States can serve as an example of a resource misused in the course of rapid development. Pessimisitic analyses of agricultural history tell a yet more dolorous story of "soil mining" and erosion as costs of the American rise to world agricultural preeminence. There is no guarantee that centralized or governmental planning of economic development must necessarily consider a longer economic horizon than private development seems to have done in the United States. Indeed, the opposite presumption can be derived from the succession of two- four- five- and six-year plans formulated in the "New Democracies" and other Socialist countries. In fact, however, the centralized public development plans do appear to have a greater degree of continuity than their short periods might suggest. They profess more and not less regard toward conservation than the private innovators have done, more rather than less regard for the interests of the next generation. There is less underlining of the "quick" in "get-rich-quick." Their comparative historical record with regard to conservation cannot yet be appraised, in view of the scanty and unreliable data made available.

The centrally-planned economies seem to be doing less well in humdrum soil, mineral, and timber conservation than in spectacular large-scale projects such as flood control. These have been placed at least since Adam Smith's day outside the domain of the private economy. Their returns come only slowly, and the bulk of them accrue to others than the immediate projectors or even their heirs. Individualistic economic development in the United States largely ignored the flood-control problem, which is now being wrestled with by public authorities created for the purpose by the pioneers' children and grandchildren. On the other hand, the centralized economic plans of China and India place both great and immediate stress on flood control. Even here it may be mistaken and biased to ascribe the differences entirely to the economic systems involved. Different degrees of technological knowledge and sad experience may be of equal if not greater importance. Surely the economic returns of flood control on the Yangtze or the Ganges in the mid-twentieth century are more rapid and obvious than the returns of similar control projects on the Mississippi or the Missouri would have been a century before.

Are These Hardships Necessary?

No disrespect to Mr. R. F. Harrod is intended in plagiarizing the title of his recent volume (on the austerity program of the British Labor Government of 1945-50) for the conclusion of this section. Our motive is admiration and not discourtesy, but our answer will not be

the same as was his. Harrod sees (in greater reliance upon the automatic mechanisms of the economic market place) an easy and natural escape from most of the rigors of Laborite planning. We shall suggest no such easy escape from the high cost of economic development, although hindsight invariably discloses numerous individual instances where they might have been reduced or eliminated without great sacrifice in the rate of progress.

Others, however, have dreamed a greater dream and seen a brighter vision; painless economic development is the name. The economic agencies of the United Nations, the International Bank for Reconstruction and Development and, to a lesser extent the Colombo Plan as well, propose to avoid most if not all of these costs, even the classical cost of abstinence, while developing large areas in Latin America, Central Africa, and South-East Asia.[4] The economists framing the plans and reports involved vary quite widely as to the relative scope of private and public agencies in planning, but they agree in what is essentially a Keynesian outlook upon the economics of development.

Developing countries, left to their own resources, are not expected to find economic growth a painless process. The Colombo Plan took pains to emphasize this point:

"The traditional means by which the vicious circle of lack of savings and lack of development has been broken is by injections of foreign investment. Without the use of external resources, the Government must either restrict the development programme or divert internal resources to development work by cutting down the standard of living. The latter process could be achieved by a ruthless mobilization of the economy, including direct action to cut consumption. Alternatively, it could be accomplished by inflation. This would be a slower and less obvious process, but it would just as inevitably involve a reduction in living standards; indeed, it might also have other serious consequences, for it would tend to discourage savings still further, and might adversely effect production.

"For Governments in South and South-east Asia none of these courses is practicable. Curtailment of the development programmes, while populations are increasing, would condemn the people of the area to continuing poverty; direct reduction of living standards could not be achieved without authoritarian government; the political, social, and economic consequences of inflation are unpredictable, but the social fabric could hardly be expected to withstand the strain which it would impose.

"In the absence of any effective means of making further progress with their economic development by their own unaided efforts, these countries need a large initial stimulus in the form of foreign investment. They need more goods to enable them to carry out their development programme—not only capital goods, but also consumer goods for the workers engaged on the projects. The foreign investment provides these goods."[5]

If the process of economic growth is to be painless to the developing countries, it must be financed largely by aid from abroad, which is either completely free of cost (like certain of the technical assistance programs under the American

[4] In December 1948 the General Assembly of the United Nations requested the Economic and Social Council to give "more consideration to economic development of underdeveloped countries." Since that time the Economic and Social Council and its regional commissions have prepared a number of reports on development problems, mainly upholding the position characterized here as "painless." These include *National and International Measures for Full Employment* (1949, II, A. 3), *Methods of Financing Economic Development of Underdeveloped Countries* (1949, II, B. 4), and *Measures for the Economic Development of Under-Developed Countries* (1951, II. B. 2). For Southeast Asia in particular, other U. N. publications are listed in ECAFE. *Mobilization of Domestic Capital in Certain Countries of Asia and the Far East* (1951, II, F. 3), p. 78. The basic Colombo Plan document is *The Colombo Plan for Co-operative Economic Development in South and Southeast Asia* (Report by the Commonwealth Consultative Committee: London, 1950). Theoretical underpinning is presented most fully in E. D. Domar, "The Effect of Foreign Investment on the Balance of Payments," *American Economic Review*, December 1950, pp. 805-826.

[5] Government of Pakistan, Ministry of Economic Affairs, *The Colombo Plan for Co-operative Economic Development in South and South-East Asia*, p. 55, reproduced in ECAFE, *Mobilization of Domestic Capital*, *op. cit.*, p. 12 f.

Point Four Program) or which can be liquidated at a later date out of the proceeds of the development itself. If the furnishing of aid is to be painless to the leading countries at the time it is furnished, there must be not only a guarantee of some future return of principal and interest but also no feasible domestic employment for the savings being transferred. It is precisely here that neo-Keynesian economics, in its stagnationist variant, enters the picture. For the savings transferred from more to less developed countries are envisaged as savings which cannot find investment outlets at home at positive rates of interest, and whose accumulation operates in a closed economy to produce unemployment rather than income. Far from involving a real cost to the lending countries, then, assistance to economic growth in their under-developed neighbors is seen as providing the positive benefits of full employment and prosperity in the investment trades. Over the long run, it postpones for a few years, decades, or perhaps even generations the evil day when capital accumulates to the point of zero or negative marginal efficiency so that the maintenance of high employment may exceed the powers of a capitalist economy. (This point we may call the Klein-Domar nightmare,[6] although similar forebodings are derived from the Keynesian system by other writers in the Keynesian tradition, and are indeed not absent from the concluding chapter of the *General Theory* itself.)

If most of the resources employed in economic development would otherwise be idle in advanced countries, the principal item in the real cost of the development is at once eliminated. At the same time, proper planning at both national and international levels can eliminate most of the other costs which we have listed. The cyclical oscillations and private monopolies of Schumpeterian economic development, for instance, are completely avoidable —on paper. Development will be at steady rates over all, although probably somewhat slower than may be desired in the developing countries; recessions and depressions between the completion of one phase of development and the beginning of the next are by no means inevitable. Furthermore, the monopolies involved are to be for the most part state agencies or public corporations patterned on the American Tennessee Valley Authority; restrictionism of output in the interest of high prices is definitely taboo. So, passing to the Marxian and quasi-Marxian costs, are forced labor, exchange controls, and runaway inflation. There is often admission, sometimes grudging, of the "inevitability" or "necessity" of continued controls (price controls, exchange controls, rationing, and allocation) on the uses of private capital, at least until the development plans begin to take hold. A modicum of mild inflation in irregular doses is also considered a permissible therapeutic against hoarding, in the interests of maximum production. As for the mutual exploitation of the international capital market, it is to be supplanted largely by loans in large amounts, at low rates with guarantees of principal, and with fairness to both sides secured by the impartial guidance of international organizations representing both debtor and creditor interests. The International Bank for Reconstruction and Development is such an institution, as is the Consultative Committee of the Colombo Plan. Creditor and debtor interests, developed and under-developed countries, are represented on both of them, although in the case of the Bank in

[6] Lawrence R. Klein, *The Keynesian Revolution* (New York: Macmillan, 1947), pp. 84f., 297f.; E. D. Domar, "Expansion and Employment," *American Economic Review*, March 1947, pp. 34-55.

particular, there is some feeling that the voting system gives undue dominance to the creditor side. As for conservation, it is an integral part of the planning programs under consideration; the strategic position of flood control in particular is recognized, and high priorities are assigned flood-control projects in many of the individual-country plans.

Such is the United Nations experiment in painless economic development. It represents a clean break with the past. It is the economic equivalent of the first experiments with anesthesia in surgery, dentistry, or obstetrics. If it succeeds, it will begin a new era in the economics of growth, as the success of anethesia began a new era in the history of surgery. Unfortunately, the economic experiment's success is far from assured.

There is a weakness in its underlying economic theory, or perhaps we should say rather in its underlying economic politics. Let us assume what is in fact questionable, namely, the imminence of the Klein-Domar nightmare in advanced economics operating along orthodox lines. Capital accumulates in North America and Western Europe until its marginal efficiency in private investment falls to zero, so that savings are hoarded at all positive rates of interest, and the process of saving operates to decrease employment rather than increase income. Let us assume further governments and voting populations which realize the costless nature of aid to the economic development of backward areas, to the extent of willingness to consider international lending on the scale conceived of by the United Nations experts. Will these same governments and voting populations not realize, and more poignantly, the costlessness of alternative uses of the same resources in public investment projects at home? Is it realistic to think, for example, in terms of an American public which will vote appropriations for flood control on the Ganges, the Yangtze, and the Zambesi while the Mississippi, the Missouri, and the Ohio continue their periodic rampages? Or which will accord a higher priority to the development of the electric power potential of Indonesia than to the development of the atomic power potential of the United States? Or which will finance free public schools in the Congo Basin ahead of subsidizing university training for its own veterans? Or which will ignore periodic steel shortages at home to provide India with the added steel capacity required for her industrialization?

What seems to be practically a political-economic law may be stated as a dilemma. If public investment in economic development programs is recognized generally as costless, or even as worth its costs, it will be carried on first at home. However "advanced" or "developed" the home country may be, there are always new heights to scale and new wants to fill. If on the other hand public investment in development programs is not recognized as costless, or worth its cost, such investment will not be carried on at all.[7] Token aid, emergency aid, aid motivated by ulterior considerations political and miliatry, can of course be expected to continue to an appreciable extent. But aid on the massive and continuous scale required, for example, for the costless raising of the Chinese standard of living even to the Japanese level, is hardly within the bounds of possibility.

[7] It is unfair to generalize from the writings of a single authority, however renowned and influential, particularly from what may be no more than oversight on his part. Nevertheless, it has been unexpected confirmation of this thesis to find Professor Sumner H. Slichter omitting any mention of assistance to under-developed countries from a list of weapons for combatting any American depression following the levelling of the defense expansion of the early 1950's, while proposing construction of a nation-wide network of toll roads patterned on the Pennsylvania Turnpike. "Are We Headed for a Depression?" *Harpers' Magazine*, February 1953), pp. 27-29.

The United Nations experiment, moreover, was launched at a rather inauspicious moment in world history. Its date was 1949, when recession appeared to be succeeding the restocking and reconversion boom of the first three years after the close of the Second World War. But after the first few months of the following year (1950), most of the major countries of the world, including all the potential lenders for large-scale development projects, have been plagued by the related diseases of inflations of various speeds and wars of various temperatures. The atmosphere of unemployment and bread-lines in the lending countries, to which the United Nations experts appear to have geared their thinking and their proposals, has vanished from view at least temporarily.

Under these circumstances, it may be unjust to comment on the basis of the results achieved under the first four or five years of painless economic development. Insofar as we may judge by the quantitites of capital which have been actually forthcoming, by the physical results achieved to date, and by comparison with reports of the admittedly costly development on the Chinese mainland and in Eastern Europe, painless economic development has not been painless to the lending countries and has produced disappointingly little economic development in the borrowing ones. It has not been painless, and has hardly been real economic development.

If the countries of South and South-East Asia, Latin America, and Africa are to develop or be developed adequately, under the present conditions of rearmament, mobilization, and inflation, reliance primarily on the costly if not bloody old ways must remain with us for a long time. When and if conditions for genuinely peaceful co-existence of the capitalist and Communist worlds are established, or some other solution is discovered for their conflict, it may become possible to provide a fairer test for the United Nations thesis of painless economic planning. But even in such idyllic circumstances, the rival urges of fiscal orthodoxy and domestic development in the advanced countries may be expected to hold its volume below the sanguine expectations of 1948-49, leaving to plague us most or all of the costs listed so heartlessly in this essay.

The Social Scientist and the Control and Development of Natural Resources†

By VINCENT OSTROM*

I. *Resource Problems and Social Relationships*

THE availability of natural resources and the ways that resources are exploited for human purposes is an important key to the understanding of sustenance patterns, institutional arrangements and policies in any society. As Walter Prescott Webb has recently demonstrated, the windfalls of the frontier furnished great material wealth at relatively little cost to spark the development and institutionalization of modern capitalism.[1] Frederick Jackson Turner earlier indicated the intimate relationship between people and the development of new resources in the formation of American society and culture.[2]

The general aridity of the West is in marked contrast to the humidity that prevailed in the physical environment where American social institutions and traditions were formed. That this circumstance would modify institutional arrangement and social policy was recognized by several of the intellectual pioneers in the West. While the conditions of the physical environment have been reflected in institutional arrangement and policies in the West, many of the unresolved institutional and policy questions in this region continue to raise problems caused by the relationship of natural resources and human values and purposes.

As early as 1878 Major John W. Powell anticipated that the arid conditions of the West would require significant alteration of land policies in relation to irrigation, timber and grazing land, the modification of water rights, the development of a new system of land surveys, and the creation of new patterns of community organization to provide "cooperative labor and capital" for the utilization of large streams in irrigation, and communal regulation of grazing lands "to secure the benefits of local social organizations, and cooperation in public improvement."[3]

Frederick Jackson Turner called the Far West, the "social" frontier.

> ". . . No conquest was possible by the old individual pioneer method . . . expensive irrigation works must be constructed, cooperative activity was demanded in the utilization of the water supply, capital beyond the reach of the farmer was required. In a word, the physiographic province itself decreed that the destiny of this frontier should be social rather than individual."[4]

In his *Conquest of Arid America*, William E. Smythe uses the same analysis to conclude that ". . . association and organization of men were the price of life and prosperity in the arid west."[5] Smythe foresaw a new kind of "associative" living among people in the West with extensive areas of collective action to provide for the development and control of water and land resources. The coercive force requiring "associative enterprise" arose

† This article is based on a paper prepared for the Conference on Research in Natural Resources Policy and Administration, sponsored by the Social Science Research Council at the University of Oregon, August 8 and 9, 1952.

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[1] Walter Prescott Webb, "Windfalls of the Frontier," *Harpers' Magazine*, November 1951, pp. 77-71.

[2] Frederick Jackson Turner, *The Frontier in American History* (New York: Henry Holt and Company, 1921).

[3] John W. Powell, *Reports on the Lands of the Arid Region of the United States . . .* (2nd ed.; Washington: Government Printing Office, 1879), pp. 23-24.

[4] Turner, *op. cit.*, p. 258.

[5] William E. Smythe, *The Conquest of Arid America* (New York: Harper and Brothers, 1900), *passim.*

from the requirements of the physical environment rather than political and social ideologies. Socialist opposition and chamber of commerce support for municipal ownership and administration of water supply in Los Angeles would not have seemed so paradoxical to Smythe.

The conclusions of Powell, Turner and Smythe raise interesting hypotheses about the extent and nature of the "social frontier" in the Far West. In what ways is life in the West more "social" than in the East? How is the social nature of the West related to the so-called rugged-individualism of the region? If life in the West is not more social in quantitative terms what of qualitative differences? Does the necessity for "associative" living in regard to control of water and land resources apply to all levels of social organization or does competition over water resources create serious impediments to comprehensive control and administration? Certainly water has contributed its share to making law suits, "the favorite sport of Californians." While these questions pose problems that provide interesting speculation, it is possible to discern significant modifications in social institutions and policies in dealing with various resources in the West.

In his report of 1878 Major Powell anticipated the modification of homestead policies to permit farm units for stock raising that would be at least 2,560 acres in size in order to sustain a farm family. While various modifications of the homestead policies were adopted to permit units as large as 640 acres in stock-raising homestead units, much of the public domain in the Western states remained in federal ownership until the adoption of the Taylor Grazing Act in 1934 to provide federal administration and control of grazing on the public domain. These large land holdings in the public domain together with various reserved public lands have made the federal government the principal land holder in the West and have intimately involved the federal government in the administration of the natural resources of the region. Public ownership of these lands permits greater experimentation for the control of natural resources in the public's interest than if the lands had been conveyed to private ownership.

Water resources control and administration have stimulated greater ingenuity among the people of the West to devise solutions to their own problems. One of the first important changes in traditional American institutions to control water resources was the abandonment of the common law doctrine of riparian rights and its replacement in most Western states by the new doctrine of prior appropriation rights. Significantly, the new doctrine was derived from practices of miners in dealing with claims to precious metals who vest rights on the basis of first come, first served.

The prior appropriation doctrine of water rights permitted full utilization of a stream with an assured supply to prior appropriators without the threat of new competitors gaining rights to water supply simply by the circumstances of location in relation to the course of a stream. The use of water under appropriation is not restricted to lands of fixed relationships with water courses as established in riparian laws. California, the only ripparian state in the West, is still confronted with serious problems arising from conflicts over water rights in the development of water exchange arrangement in the Central Valley.

The Western states have devised a number of local public agencies to provide for the construction and administration of water works. Early settlers in Utah and Southern California organized the mutual water companies as semi-

public agencies to provide irrigation water for farming communities on a co-operative basis. C. C. Teague has indicated that the mutual water companies were the origin of the agricultural co-operative movement in California.

"From cooperation in mutual water companies it was just another step to the development of non-profit, grower-owned and grower-controlled cooperative marketing organizations and cooperative purchasing agencies."[6]

Beginning with the Wright Act of 1887 California and other Western states organized irrigation districts as public agencies with power of taxation to implement the construction and operation of irrigation works. Today these agencies have proliferated until there are vast numbers of local governmental units charged with local administration of water resources in the West including drainage districts, public utility districts, municipal utility districts, metropolitan water districts, county water districts, municipal water districts, water control districts, and water districts. While this proliferation has helped to facilitate development of local water resources it has contributed to the confusion of the five-ring circus in present-day local government.

Most Western states were organized as political units without any consideration to the construction of adequate hydrologic units, which might permit effective administration and control of a river system or of tributaries. This task of dealing with a river system involving several states was first undertaken in the Colorado River basin with the negotiation of the Colorado River Compact and the development of the Boulder Canyon project. While the experience of the Colorado River basin states has been disappointing in terms of the development of what Ray Lyman Wilbur called, "this new principle of a regional problem, regionally administered,"[7] some interesting patterns of federal, state and local administration have developed in the generation and transmission of electrical energy from Hoover and Parker dams. Other potentialities for inter-state cooperation were conceived in the Colorado River arrangements which could serve as the basis for interesting developments in regional government. For example, the Boulder Canyon Project Act provided:

"That the consent of Congress is hereby given to the States of Arizona, California, Colorado, Nevada, New Mexico, Utah and Wyoming to negotiate and enter into compacts or agreements, supplemental to and in conformity with the Colorado River compact and consistent with this Act for a comprehensive plan for the development of the Colorado River and providing for the storage, diversion and use of the waters of said river. *Any such compact or agreement may provide for the construction of dams, headworks, and other diversion works or structures for flood control, reclamation, improvement of navigation, division of water, or other purposes and/or the construction of power houses or other structures for the purposes of the development of water power and the financing of the same; and for such purposes may authorize the creation of interstate commissions and/or the creation of corporations, authorities, or other instrumentalities.*"[8]

These developments in land and water resources are only a few illustrations of the problems which have formed important policy questions and required the creation of new public institutions in the formation of Western society. Much more comprehensive investigations need to be made of the total complex of human ecology in the West to give an adequate understanding of the relationships of man to his environment and to the kind of civilization that is being built.

[6] C. C. Teague, *Fifty Years a Rancher* (Los Angeles: Ward Ritchie Press, 1944), p. 134.

[7] *Los Angeles Examiner*, May 29, 1930.

[8] Ray Lyman Wilbur and Northcutt Ely, eds., *Hoover Dam Documents* (2nd ed.; Washington: Government Printing Office, 1949), p. A225.

Since many resources in the West remain relatively undeveloped it is important that all relevant information be appraised in the development of public policies which will do so much in shaping the future of the region. Control over resources and policies relating to the utilization of resources are important sources of coercion that can be used as tools to mold institutional arrangements and community patterns. Whether or not this source of power is consciously used to shape social arrangements toward specific social objectives, the consequence of such controls or lack of controls have their effect, nevertheless.

After Los Angeles completed the Los Angeles Aqueduct to transport the Owens River to the coastal plain, a water supply several times greater than the local supply was available for urban development. The disposal of this surplus water, also used to generate hydro-electric power along the aqueduct, created a serious policy problem for the city. Would this water supply be used to produce city-county consolidation, the expansion of the city boundaries by annexation to include outlying areas contiguous to the city or a profit from sale to the highest bidders? There was not enough water to supply the entire area of Los Angeles County so city-county consolidation as an alternative was dismissed early in the deliberations. The sale of water to produce a large municipal profit attracted widespread support but was defeated after prolonged controversy in favor of the annexation policy to make Los Angeles into "the metropolis of the Pacific Coast."

The relationship of the policy for the disposal of surplus water to the building of Los Angeles into a Great City was clearly recognized by the Annexation Commission in recommending the policy of annexation and consolidation.

> "Greater Los Angeles, co-extensive with the territory receiving aqueduct water, will have a population, assessed valuation, bank clearings, building permits, etc., in excess of any other city on the Pacific Coast. Wherever the aqueduct water is placed—be it north, south, east or west—there will the greatest development of the future be found, and that development should be a part of, and help constitute the Greater Los Angeles that is to be."[9]

And so it came to be!

In determining the areas to be considered for first priorities in annexation to Los Angeles, the selections were made on the basis of making the water immediately available for agricultural production and structuring the city boundaries to include an integral hydrologic unit, the underground basin of San Fernando Valley, for greater control over water resources utilization and administration. In San Fernando Valley, Los Angeles organized its own reclamation project to put more than 50,000 acres under irrigation to spark new urban growth and development. As a result of these land and water policies Los Angeles still has immense acreage for urban and industrial development that in the meantime is producing a $20,000,000 agricultural harvest.[10]

Similar objectives have motivated the municipal power system in Los Angeles. Since 1917 the power system has conducted an industrial promotion program that is probably more effective than the promotional activities of the Los Angeles Chamber of Commerce. Municipal water and power policies in Los Angeles are conceived so that water and power resources can be used as tools to create institutional arrangements and community development for building the Greater City.

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[9] Los Angeles City, *Council Records*, XCIV: 141.

[10] Los Angeles City, Planning Commission, *Planning for San Fernando Valley* (Los Angeles, 1945), p. 3.

Similar controls over water policies have been exercised by the Metropolitan Water District of Southern California. By requiring annexation as a condition for the purchase of Colorado River water, the Metropolitan Water District is gradually forming an agency for water administration on the Southern California coastal plain that will be able to exercise comprehensive control over the water resources of the region. Each new unit considered for annexation is required to organize itself in relation to underground basins so as to avoid irresponsible pumping and excessive overdrafts on the reserves of water supply available within the underground basins.[11]

The patterns which have been developed in Southern California by the use of resources as tools for community growth and development raise questions of the extent that other resource agencies conceive of their policies in terms of the human ends that these resources might be made to serve. Conversely, resource policy might be subject to stimulating analysis of the kind of commitments that these policies imply for patterns of community development, social relationships, and, generally, the character of human ends that these resource agencies are serving. What kind of a Pacific Northwest is the Bonneville Power Administration building through its policies for the sale of hydro-electric power? What human ends are being served by the nourishment of the local "grass roots" by the Corps of Engineers? To what kind of society is the Bureau of Reclamation committed by its policies of organization and operation? What is the relationship of forest management policies motivated by sustained yield or competition in relation to community stability?

Still another component that enters into the human equation of resources administration is the effect of the general ecological balance upon public dispositions and attitudes. While this relationship is most hypothetical there are some indications that it may be an important factor to consider in relation to policy conflicts and policy changes. In Southern California the major developments in water administration and water resources programs including initiation of the Los Angeles Aqueduct, the organization of the Metropolitan Water District of Southern California, initiation of the Colorado River Aqueduct, and the so-called "dry-cycle harvest" of annexations to the Metropolitan Water District, have been closely correlated with drought cycles. This action stands out in emphasis when it is realized that each of these developments involved the assumption of an obligation on the part of those who had water to provide for those who did not.

Are there fundamental differences in attitudes between peoples in their relationships to their environment, where they live in upper water-producing areas of a drainage basin in comparison to the lower water-consuming areas? Much of the rancor and animosity that stand in the way of comprehensive water resources planning would seem to be oriented to these different communities of interest or dispositions toward policy.

In a different area of problems, what is the relationship between the harvesting of forest and mineral resources to a sense of personal and community instability? Loggers, for instance, impress one as having a considerable sense of personal security but with an attitude of indifference or hostility toward values to be derived from stable community relationships. While these questions may represent superficial hunches, the psychologists and the anthropologists may have some

[11] Julian Hinds, *Summary: Colorado River Plans and Policies*, Metropolitan Water District of Southern California, Los Angeles, 1949 (mimeo.).

important insights to contribute to relationships of program objectives in various areas of natural resources administration to human behavior, and the possibilities of conflict, frustration or fulfillment in the conduct of a resource program.

II. *Resource Problems as a Challenge to Specialization*

Each area of natural resources administration involves the manipulation of inorganic or organic materials or energy that serve some important human purpose. Each of these materials or forms of energy has its own inherent characteristics and processes that are the basis of intensive specialization in the application of the physical, biological and earth sciences to produce engineers, geologists, foresters, and a host of other specialists. This pattern of specialization is complicated at the physical level of resources administration by the intricate problems of interrelationships that exist within the physical environment of a region. Various land-use programs are intimately related to water problems such as flood control. erosion, siltation, pollution, and the balance of water life. In water resources administration alone, the many functions of water produce many technical problems of interrelationships and priorities of use. Fish may be the bane of the electrical engineer but he cannot ignore them.

Even at these technical levels of resource problems there are serious conflicts arising from differences in approach, intellectual orientation and operating assumptions. As water consultant for the National Resources Committee, Samuel B. Morris once commented upon these differences among engineers.

". . . There is quite a marked difference in views between the sponsors of so-called 'upstream engineering' of 'little waters' and the hydraulic engineers accustomed to the design and construction of major dams, locks, power plants, canals, dikes, river revetments, etc. Their struggle for dominance of expression in the brief report of the committees gives psychological interest at some sacrifice of readability and true technical worth. Even the published reports of research and observation are read cynically and doubted or disbelieved by those of opposite schools of allegiance or belief.[12]

Doubtless, anyone who has had extensive experience with engineers and other technical specialists in resources administration has discerned comparable differences. Some hydraulic engineers might appropriately be termed "water warriors" who live by the "magic touch of water" that "make the deserts bloom" or "transform deserts into great cities." The water warriors are apt to consider hydroelectric potentials as a by-product of water to be appropriately used to establish the economic feasibility of great water works projects. Electrical engineers, on the other hand, are apt to see power as the key issue involving the big stakes in the building of the great industries of the future. The amount of power subsidy for water works projects is apt to be resolved at the level of bargaining for strategic advantage in program development rather than a consideration of priorities of water use in relation to the human needs and values.

These conflicts of specialization are apt to be reinforced by the nature of major-purpose administrative organization in American government without adequate institutionalization of opportunities for criticism. An agency like the Bureau of Reclamation is apt to become a fortress for a particular species of the water warrior.

Engineers have frequently used the board of review to provide independent criticism and review of an engineering

[12] U. S. National Resources Committee, *Proceedings of the First Southwest Planning Conference, September 9-10, 1938* (mimeo.)., p 63.

project; but operating assumptions are generally taken as the given factors in the review of project feasibility. Furthermore one might suspect that boards of review are selected from among the engineers who make the same implicit assumptions as the project engineers.

Within the framework of an administrative organization engineers are apt to become committed to political involvements of the operating procedures of the organization or to an anticipation of front office policy to restrict the analysis of possible physical alternatives in planning to accomplish broad program objectives. The phenomenon of the American pork barrel certainly influences the Corps of Engineers and the nature of the alternatives that are considered relevant to program objectives such as flood control. In other situations, there is some reason to suspect that engineering organizations limit project alternatives and designs in terms of the anticipated reaction of top policy makers.

Most engineers have realized that in addition to the technical task of the engineer is another task involving the "engineering of men." This point was made very explicit in an old water investigation report:

> "Control of water to secure maximum supply at costs determined by the economic situation is the engineering problem and that problem is solvable.
>
> "Ahead of the engineering accomplishment is the engineering of men. The decision of the community at large must be made. For accomplishment, its public body, its semi-public water organizations, and its individuals must unite in team work to pool, rearrange and compromise existing interests, to legislate and to create a competent organization to carry out the engineering solution."[13]

While "costs determined by the economic situation" or economic feasibility may have once been a relatively simple matter for the engineer to deal with, there is today serious question of what various engineering organizations mean by their standard of economic feasibility. This whole problem needs serious analysis and reconsideration. In the Central Arizona project, for example, the Department of Agriculture has protested the adequacy of the standards used by the Bureau of Reclamation.[14] How much of the community's or the nation's fiscal resources can be wisely invested in programs for the control of natural resources in terms of the benefits to be derived from the expenditure? What are the benefits? How are the benefits to be measured? Who should pay what costs for whose benefits? Without this kind of data, sufficiently standardized to serve the basis for comparative analysis, policy must suffer the consequence of uninformed judgment.

In the "engineering of men" social scientists have many relevant questions to ask. One might grant that "the decision of the community at large must be made." But, what kinds of commitments are made from the manner in which the decision of the community is secured? Are there dangers of an agency becoming the victim of the creature that it has devised to carry on its political battles? Or again, what are the consequences of log-rolling tactics that seek to please everyone by frequent recourse to the pork barrel?

Competence to carry out the engineering solutions is only one of the criteria to be applied to the design of an administrative organization. The nature of the operational program and policies, the traditions of public law and administrative practices in a community, the force and character of people comprising the

[13] California, Department of Public Works, *Santa Ana Investigation, Flood Control and Conservation*, Bulletin No. 19, Sacramento, 1923, p. 32.

[14] U. S. Department of the Interior, *Central Arizona Project*, House Document No. 136, 81st Cong., 1st sess. (Washington: Government Printing Office, 1949), p. 103.

administrative organization and the relationships of citizen interests and conflicts to program objectives are important conditioning factors in the development of organizational arrangements. Unfortunately the obsession of "efficiency engineers" for limited objectives of "efficiency and economy" has unnecessarily stereotyped the potential contribution of social scientists to problems of organizational design.

The approach and material of the social sciences have had restricted application in professional staffs among resource agencies. The lawyer who serves as the most important political adviser in an administrative organization rarely conceives of his role as a kind of political architect but prefers to deal with legal precedent, restricting potential alternatives for action. Personnel specialists traditionally define their role as the administration of specific personnel transactions rather than helping in the evaluation of operations in relation to the development of more satisfactory working relationships in the attainment of program and policy objectives. The public relations officers are apt to be experts in the manipulation of techniques for bombarding the public, but incapable of relating the public to consideration of programs and policies. Occasionally economists are utilized in staff positions in resource agencies to make analyses of economic feasibility and pay-out features of a project; but the employment of an anthropologist or social psychologist to advise on the relationship of a resource program to the various people involved is almost unheard of.

As the purveyor of many implicit major assumptions structured into the education of professional men and women and as the traditional agency for the institutionalization of scientific investigation, the university needs to consider the challenge posed by resources problems. At both the research and policy levels fuller information and analyses are needed to provide more adequate control of data, critical review of operating and policy assumptions, better understanding of the relationships of human behavior to resources administration and more careful analyses of the social consequences of action in programs to control and develop natural resources.

Resource problems, however, ramify in terms that defy the traditional pattern of the division of labor within the American university. Universities have organized the universe of knowledge with which they are concerned into a series of subject matter areas and professional schools that are concerned with segments of the physical, biological, earth and social sciences. On the other hand natural resources problems require knowledge from all of these areas of investigation to provide for an adequate consideration of all of the variables that might be involved.

If the scholar is to provide critical analyses of contemporary problems and their meaning he must be prepared to accept the redefinition of his role and conceptual approach posed by the requirement of his problems. The political scientist who begins with his preconception of institutional arrangement and political processes is apt to see any problem first, in terms of a set of public institutions organized to deal with the problem; secondly, the body of policies established for the administration of the problem; and thirdly, the competing interests who are seeking to influence policy without having come to an adequate definition and analysis of the problem before considering its ramifications to political behavior. Essentially the same observation can be made of any one of the disciplines among the various sciences. By more careful consideration to the definition of

the problem and the development of research design from the requirements of the problem it may be possible to involve the various scientific disciplines and professional practitioners in a more productive cross-fertilization of ideas and at the same time facilitate the mutual criticism so necessary to the tradition of scientific investigation.

III. *Some Approaches to Systematic Inquiry into Problems of Resources Administration*

More systematic inquiry into problems of resources administration is required to develop fuller understanding of the relationship of man to efforts to provide for more intelligent control of the environment and to provide adequate information so that choices can be made by the community and its policy makers among the available alternatives in terms of the human ends and values to be served.

A Regional Studies Program. The need for more systematic research and more effective education in resource problems might be realized through the development of a comprehensive regional studies program. The region where a university carries on its work provides the necessary social laboratory to study human society as it unfolds in the development of the natural resources which make life possible. Within the regional setting it is possible to see human life in all of its interrelationships as man comes to grasp with the task of building the necessary social agencies to sustain his needs and aspirations from the materials at hand. The region provides a kind of social microcosm where the dynamics of the physical environment, the flora, fauna, and human life can be seen in all their inter-relations and inter-actions.

From the conception of the region as a microcosm it is possible to approach the problems of resources development and administration from essentially an ecological concept. By viewing man in his total physical and social environment it is possible to draw upon the relevant knowledge, understanding and methods of the physical, biological, earth and social sciences to provide a systematic basis for the study of man in his efforts to control the physical environment.

No one can seriously contend that the present method of scientific specialization, which has been so productive in advancing upon the frontiers of the unknown, should be uprooted and displaced by an alternate mode of specialization and organization. Yet, it is possible to avoid the dilemma of the specialist who knows more and more about less and less. As a microcosm, the region can serve as a referent in which specialized scientific investigators can make new increment to the development of their sciences while at the same time relating each further achievement in specialized knowledge to the common body of knowledge and experience shared by each other.

By its emphasis upon the interrelatedness of human experience within perceptible physical bounds, the regional approach makes it possible to perceive patterns of social and physical interrelationships that must necessarily elude the researcher who seeks out isolable systems for scientific investigation within the bounds of traditional subject-matter areas. Since human society is, by definition, complex patterns of interrelationships, the regional approach may provide for important advances in both the content and theory of the social sciences. Insights secured from the microcosm of the region may develop a better capacity to deal with the macrocosm of the world.

Another important aspect of a regional studies program is the link that can be forged between the university scholar

and responsible participants in policy formation. Through a regional studies program the resources of a university can be organized in terms that are relevant to administration and policy problems. Consequently the research facilities of a university can be drawn upon to bring the intelligence of a university to bear upon many difficult problems of public policy. With fuller information the task of determining public policy can be approached with new insights and understandings. At the same time closer contact with the practitioner will give the university scholar a wider range of research materials and a more intimate understanding of the problems with which both are dealing. Understanding based on knowledge is apt to lead to sympathetic helpfulness and constructive criticism rather than cynicism in the relations between the scholar and the practitioner.

Finally, a regional studies program provides interesting potentialities for regional inter-institutional cooperation among the universities in the consideration of problems that affect the region as a whole. Through inter-institutional cooperation among universities, the educational resources available to the people of a region can be significantly expanded. A study of Washington's experience with the effect of the exhaustion of its timber resources upon the economy of its local communities would be a valuable source of information to communities in Oregon that are beginning to face these prospects. Any significant development in inter-institutional and inter-disciplinary cooperation, however, requires some deliberate steps to institutionalize relationships which do not now exist.

While the microcosm of the region may provide important avenues to an understanding of the broader macrocosm of the world, no regional studies program can afford to neglect the fields of inquiry concerned with universal problems. To avoid the intellectual disease of provincialism, deliberate effort is required to involve others who can contribute important insights through other approaches to the universe and to comparative analysis.

A Policy Review Program. In addition to developments that need to be considered in the work of the scholar and the university, ways need to be devised to make present intelligence and knowledge available to the public and to policy-determining agencies so that informed judgments can be made about problems of resources administration and control. If available intelligence cannot be brought into the context of policy formation efforts to secure sound resource policies will be fruitless.

Engineers have long used the device of a board of review or board of consulting engineers to provide for an independent review of engineering programs and projects by a small group of engineers selected for their competence and integrity. The task of initiating a program and designing a project is the function of responsible administrators and project engineers, but before final commitments in program or structures are made the plans and design are subject to review to determine if the best alternatives were selected to accomplish the objectives.

No comparable opportunity has been developed to provide for systematic review and criticism of the value assumptions, programs and policies that involve human ends and purposes in the control and development of natural resources. If data about the human factor are to secure adequate attention and be subject to critical review it would seem desirable to institute a policy review team composed of social scientists, engineers and other appropriate specialists who are competent in dealing with resource

problems and whose integrity is undisputed. The policy review team might concern itself with a review of value assumptions, programs, policies, organizational arrangements and relations and not be a substitute for the engineering board of review which would still need to consider the adequacy of project design in terms of the functions to be served.

If such a device were instituted much more careful attention would be required of social data in project planning and justification. Utilization of social data would require the standardization of the data so that better comparative judgment could be made. More meaningful criteria might be developed to help policy-makers in the consideration of resource programs than the criteria of feasibility that are presently utilized.

In a controversy such as that being waged over the Central Arizona project[15] a careful appraisal of motives, implicit assumptions, historical commitments and obligations, benefits and costs, and policies might be subject to scrutiny in terms of the alternatives that might be available to Central Arizona and the alternatives for the use of Colorado River water consistent with prior rights and obligations. What are the facts about the Colorado River rights established by the Colorado River Compact, the Boulder Canyon Project Act, the California Limitations Act and other relevant legal actions? The arguments seem to go 'round and 'round without anyone attempting to make an objective analysis of what the contracting parties meant by "beneficial consumptive use" or "surplus" water.

Similarly, what does the new "rescue" doctrine[16] imply for future water resources development? What or who is being rescued and from what? What are the financial, social and resource costs of a rescue operation both in terms of carrying out the operation or in failure to undertake the rescue missions? How adequate is the technical design of the project to meet the requirements of the stated objectives? What other alternatives are available?

It should be strongly emphasized that policy review by a team of consultants is *not* a policy-determining function but one of review and criticism in order to provide more adequate basis of information and intelligence for decision by the properly constituted policy-determining authorities. Any confusion about this distinction is apt to put the expert into the position of making value judgments for the community, a function which he is especially incapable of performing. Policy review, however, should not be limited to consideration of resource programs and projects that have advanced to the stage of unresolvable controversy. Preferably this kind of review could be made a regular part of program and project planning prior to authorization or as a part of general policy considerations.

If the function of policy review is to be accepted as honest appraisal and criticism, utmost care must be exercised to select persons of integrity and competence to serve on policy review teams with full access to data and complete independence of action. The inauguration of a program of policy review would require initiation by resource agencies if it were to become a part of the program planning

[15] *Ibid.* This project is the center of the controversy between Arizona and California over water rights to the Colorado River and involves a number of other controversial issues in Federal water resources policy.

[16] The "rescue" doctrine refers to the justification used by the Bureau of Reclamation in approving the Central Arizona project on the basis of "acute need" for supplementary water to replace overdrafts on ground water supplies caused by excessive pumping. By implication, this project would involve federal assumption of responsibility for "rescuing" irrigators who had over-appropriated local water supplies by the importation of a new supply of water at costs averaging more than $1800 per acre for the agricultural land affected, to be reimbursed largely from the power features of the project.

process.[17] However, important steps could be initiated in this direction by other agencies who accept conditions of independence of review and criticism and the obligation for full publication of results.

Social scientists have important contributions to make to research in problems of natural resources administration as efforts to control the physical environment to serve human needs and purposes. Conversely, as research into resource problems requires redefinition of the conceptual approach of the various social sciences and their association with each other and with other sciences cross-fertilization can occur to stimulate new developments in the nature and methodology of the social sciences. We need to consider arrangements and relationships to facilitate the redefinition of the roles of social scientists in relation to problems of resource control and development.

[17] The development of review boards at departmental or presidential levels has been experimented with and considered by a number of sources (including the National Resources Planning Board, the Hoover Commission, and the President's Water Resources Policy Commission among others) to secure more effective review and criticism in the process of resource planning. This proposal is concerned with the development of extra-agency review that would permit greater freedom in evaluation and criticism.

Among Articles to Appear in August 1953 issue of *Land Economics*

The Revested Oregon and California Grant Lands: A Problem in Land Management.....*Wesley C. Ballaine*

Land Reform and Politics in Czechoslovakia: 1945-1952....*Karel Hulicka*

Aftermath of Shelly versus Kraemer on Residential Restriction by Race.....*B. T. McGraw* and *George B. Nesbitt*

Accelerated Amortization and Regulatory Policy....*Edward Neuner, Jr.*

Middle-Income Housing: The Cooperative Snare.....*Charles M. Haar*

Sugar Beet Rental Arrangements.....*George H. Walter*

Mechanics of the Urban Economic Base: The Problem of Terminology.....*Richard B. Andrews*

II. The High Cost of Economic Development....*Martin Bronfenbrenner*

Public Operation and Regulation of the Abstracting Business†

By HAROLD ELLIS* *and* RALEIGH BARLOWE**

ONE of the more important steps in the process of conveying or mortgaging real property centers in the preparation of abstracts of title. The purpose of an abstract is to provide a description of the deeds, mortgages, and other recorded legal documents that make up or affect the title to any particular property. As such, it provides evidence of title but in no sense constitutes a guarantee of title. The owner of farm or urban real estate who sells or mortgages his property is expected to give and to stand behind certain warranties concerning the condition of his title. But any substantial defects in his title may later create serious difficulty, inconvenience, and expense to the purchaser or mortagee, as well as to himself. It is therefore important to obtain an abstract of title, have it examined by an attorney, and have the title found or made "marketable" before the transaction is closed.[1]

In most states abstracts of title are prepared as a private business—by abstract companies, lawyers, or other individuals. Although abstracting involves the frequent and almost constant use of public records, most private abstractors find themselves relatively free from public regulation. A number of states, however, have enacted legislation to regulate the private abstracting business in various ways, and a few states even permit public (usually county) operation of the abstracting business.

County-Operated Abstracting Systems in Michigan

A good view of the operation of county abstracting services is provided in the state of Michigan. On the basis of a survey conducted by Michigan State College and the Bureau of Agricultural Economics (U.S.D.A.), nineteen of the 83 Michigan counties had county-operated abstracting systems in 1951. Some of these systems have been started in recent years, but many date back to the 1800's. The registers of deeds in several counties began to do abstracting as one of the services provided by their offices at a relatively early date. At the time there was no legislation expressly authorizing counties to engage in this business. But the courts held such activity to be legally permissible in counties where a geographical or "tract" index of recorded deeds, mortgages, and other legal documents had been established in addition to the conventional "grantor-grantee" index.[2] The courts felt that such authority could be implied from the wording of the statute permitting counties to set up a geographical index.

The present law, enacted in 1921, would appear to authorize (1) county registers of deeds to operate as county abstractors, (2) the employment of abstractors to work in the register of deeds office or other county offices, or (3) the establishment of separate county abstract-

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[1] In many states the seller customarily furnishes the abstract, while in others this responsibility may be placed on the purchaser.

[2] *Thomas* v. *Bd. of Supervisors of Wayne County*, 214 Mich. 72, 182 N. W. 417 (1921).

ing offices.[3] The statute further authorizes Michigan counties to do "all things necessary for the carrying out of a general business of making and furnishing abstracts of title to the lands in such counties," and purports "to provide a definite and uniform method" for so doing. In counties with a population of less than 900,000 people, the decision to set up a county abstracting system must first be approved by the voters at a general or special election.[4]

Eight of the 19 counties with county-operated abstracting systems are located in southern Michigan, an additional 6 are located in the northern half of the Lower Peninsula, while 5 are located in the Upper Peninsula. Though most are in rural counties, 3 are in counties with over 100,000 population. In 9 counties the register of deeds does abstracting in addition to his (or her) other duties, and sometimes he has a deputy abstractor and other assistants. In one county a full-time county abstractor works in the office of the register of deeds. The other 9 counties have a full-time abstractor who supervises a separate abstract department, usually located in the courthouse. In 6 of the 19 counties there are between one and three private abstract offices operating in addition to the county office.

All abstracting is done on a private basis in the remaining 64 counties. In a few of these counties, however, office space is provided for an abstractor at the courthouse. In one case, the county receives a percentage of the abstractor's receipts. In 8 counties (mostly up-state) the register of deeds is permitted to carry on a private abstracting business in his office.[5] In 38 of the counties without county systems there is only one private abstractor or abstract office in operation. Twenty-two counties have two private concerns each, and four counties have three. One abstract company was found to have offices in at least five different counties.

Opinions Regarding Abstracting by County

Personal visits were made to 10 of the 19 county-operated abstract offices. In addition, interviews were obtained with 37 persons (31 lawyers and 6 realtors and bankers) in these 10 counties and in 12 neighboring counties where all abstracting is done as a private business.[6] The county-operated abstracting system met with the approval of 19 of these persons, while 7 opposed it and 11 took no definite stand. (Interviewed persons located in counties where the county system operates lined up as follows: 11 for it, 3 against it, and 3 took no stand.) Those preferring the county system over the private system gave one or more of the following reasons: (1) Fees charged are lower. (2) Greater tendency for rates charged to be standardized and made public. (3) Less tendency to "pad" abstracts, though abstracts are adequate. (4) More prompt and cooperative service. (5) Abstract business can be conducted more cheaply and efficiently in courthouse, particularly where done in register of deeds office, and the savings can be passed on to the public. (6) Public is given more control, in general, over abstracting business.

Those who opposed the county system gave one or more of the following reasons:

[3] Mich. Stat. Annot. (with 1951 supp.) sec. 5.1001, *et seq.* The constitutionality of this statute has not yet been determined by the State Supreme Court. Prior to the passage of the present act the courts held that counties could not lawfully set up separate abstracting departments, as this would usurp a permissible function of the register of deeds. See *Thomas* v. *Bd of Supervisors of Wayne County*, ante, note 2.

[4] Mich. Stat. Annot. (supp. 1951) sec. 5.1001 *et seq.*; Op. Atty. Gen. No. 964, April 22, 1949.

[5] In a few counties abstracting was reported to have once been done by the register of deeds as a *public* business, but this function was later discontinued when the office changed hands.

[6] A number of the lawyers were doing extensive title work for a Federal Land Bank, the Veterans Administration, a power company, or commercial banks, while others were doing title work on a less extensive scale.

(1) Abstracts furnished are too brief or otherwise unreliable. (2) Abstractors lack adequate training. (3) Too frequent changes in abstractors. Ought to keep abstracting out of politics. (4) Do not think county can be sued if abstractor makes a mistake. (5) Unnecessary bureaucracy. (6) Tendency in some counties for county to want to make a big profit. (7) Desirable to have a separate set of abstract books in a private abstract office in case of fire at the courthouse. In each case, the reason listed first was heard most frequently.

Some Details of the County Abstracting System

The register of deeds did the abstracting work in 3 of the 10 county-operated offices visited. This, of course, was on a part-time basis. In a fourth county a full-time abstractor was employed in the register of deeds office, while a separate abstract department had been set up in the remaining 6 counties. Following is a description of some of the more salient details of their operation. Little comparable data were obtained on the private offices in these counties, except with respect to the fees they charge.

Charges Made for Preparing Abstracts. Information was obtained on the rates charged by the 10 county-operated offices visited, and by 30 private offices, a few of which were located in 3 of these counties and the rest in 15 neighboring counties.[7] The Michigan statutes do not prescribe or limit the fees that county and private abstractors may charge. In the case of county abstractors, this is left up to the county boards of supervisors. The cost per abstract is based primarily on (1) a certain charge per entry (i.e., for each deed, mortgage, or other document abstracted) plus (2) a charge for the abstractor's certification (in which he might certify that he has searched designated county records and has correctly shown deeds and other legal documents affecting the title).

The average rates charged by county offices were about 75c per entry and $1.50 to $1.75 for the abstractor's certification. The rates ranged from a low of 50c per entry and nothing for certification in one county to a high of $1.00 per entry and $3.00 for certification in another. In contrast, the average rates charged by private abstractors were about $1.20 per entry and $4.00 to $5.30 for certification. The charge per entry varied from 50c to $2.00 and the charge for certification from $1.50 to $7.50, though in some cases this represented just the minimum certification charge. It might sometimes cost as much as $10 for the certification to a complete or "new" abstract.[8]

Generally speaking, therefore, the rates charged per entry by the private offices were found to average about 60 percent higher, and the charges for certification about 170 to 200 percent higher than in the county-operated offices. Seldom were the lowest rates charged by the private offices found to be less than the highest rates charged by county offices.

The average total charge on complete or "new" abstracts was found to be about $15 to $30 in most of the county-operated offices, but occasionally an abstract would

[7] Information on rates charged by private offices was usually obtained in interviews with lawyers.

[8] In a number of the counties having no public abstracting service there were two and occasionally three private abstract offices. With the exception of one county, the rates of the two or three offices were all about the same. The rates charged by private offices in counties where there was but one office did not differ significantly from counties where there was more than one office. There was both a county and private office in three counties. In one county about the same (low) rates were charged by each office, but in the other counties the rates of the county office were substantially below those of the private office. Two of the 10 counties having a county-run office and six of the counties having all private abstracting were urban counties with a population (based on the 1950 U.S. Census) of 100,000 to 500,000. However, the rates charged by the county and private offices in these counties were, on the whole, only slightly above average.

cost over $40.[9] However, on the basis of information obtained in most of these counties, it appears that only about ⅛ to ⅙ of all abstracts prepared are new abstracts. The rest are merely "extensions" or continuations of old abstracts, to bring them up to date. The average fee charged for making an extension was usually only about $3.00 to $5.00, although the fee would sometimes exceed $10.00.

No direct information was obtained on the total charge per abstract made by private companies. On the basis of the data reported on charges per entry and for certification, however, one might assume total charges to be generally higher than those reported by the county offices.[10]

Income Realized from Abstracting. The annual gross receipts of county-operated offices were found to vary from less than $2,000 in a few of the 10 counties visited to about $55,000 in one of the larger counties. Four counties (with a population of 25,000 to 50,000 and in which all abstracting was done by the county office) reported a gross income of from $9,000 to $21,000. On the strength of this information, the annual gross income of all county and private offices in the state might be estimated at around 4 to 5 million dollars.

The *net* income figures reported by the county offices varied from less than $1,000 to nearly $14,000 annually, with about half of the offices "netting" from $3,000 to 10,000. However, these "net" income figures should be adjusted downward, since usually no allowance had been made for heat, electricity, or space provided at the courthouse. The annual "net" income reported in three counties was less than $1,000. These three counties were barely breaking even, or perhaps even being subsidized, though their rates were among the lowest reported. In two of these counties the register of deeds was doing the abstracting, using heat and space which might not otherwise have been so fully utilized. Two of the offices were getting only a part of the abstract business in the county. The abstractor in the third county office reported that a private company could not survive there at the rates he was charging.

Adequacy of Abstracts Prepared. As indicated previously, one of the major objections to the county system concerned the inadequacy of the abstracts prepared by some county offices (though similar objections were raised with respect to a few private offices). There was some basis for this. But most objections heard dealt with the amount and type of information included in the abstract rather than the accuracy of such information. Lawyers who examine titles were found to hold such widely varying opinions concerning what an abstract should contain that a definite appraisal of the county system could not be made on this score. Lawyers having wide experience considered some county abstract offices (including those where the register of deeds is the abstractor) to be among the best, and some to be among the worst abstract offices in the state.

The amount and type of information actually contained in the abstract was found to vary considerably. Some ap-

[9] Since the number of deeds, mortgages, and other documents affecting a particular property may vary considerably, a rather wide variation in fees would be expected

[10] In addition to per entry and certification charges, there may be some miscellaneous charges involved in the total cost of an abstract, such as a charge "per page" for including transcripts (or photostats) of wills. No information was obtained on such miscellaneous charges made by private concerns. So the above comparison of rates charged might need to be qualified somewhat, depending on the extent to which any disparity in such miscellaneous charges varies from the observed disparity in charges made per entry and certification by county and private offices. Incidentally, there was no evidence that private offices would be at all reluctant to extend an old abstract instead of making up a new one. (The attorney employed to examine the title would likely be more influential in this regard.)

peared to contain rather meager information, while others were fairly detailed. In a few counties additional information would be provided for an extra fee. Some of the objections about inadequate abstracts came from lawyers located outside the counties with county systems. It would be more difficult for them to check the recorded documents themselves with respect to any alleged inadequacies in the abstract.

In one county the abstract prepared by the county office was considered to contain some unnecessary information; i.e., to be slightly "padded." However, the lawyer who raised this objection observed that this was the fault of the title examiners, not the abstractors. He thought they should all get together and agree on what should be included.

Speed and Type of Service. No objections were raised concerning the speed in furnishing abstracts. A few offices, however, reported that they were currently running behind in the preparation of "new" abstracts, reputedly because the county failed to provide for sufficient personnel to do the job.

Frequent compliments were heard about the courteous and cooperative service rendered. Rate schedules were nearly always made readily available to the public. Moreover, practically all county abstractors would give a free estimate of the cost of an abstract before an order is placed for its preparation. This type of service was reported not to be readily available from many private abstract offices, but the evidence obtained was not conclusive on this point.

Some county abstract offices allow the general public to use their abstract books or other indexing systems to make cursory title searches or acquire other information, while others generally discourage the use of such records except by practicing attorneys. This would be of particular importance in counties having no tract index in the register of deeds' office. Several of the lawyers interviewed reported that the county abstract office afforded them free access to its records, whereas private concerns were often less cooperative in this respect.

Tenure, Training and Salary of Abstractors. While rapid turnover of personnel was sometimes cited as an objectionable feature of the county system, particularly where the register of deeds does the abstracting, this was not substantiated in the 10 counties visited. In most instances the abstractor had been on the job for at least 5 years, and in one case for 26 years. In some of the counties having a separate abstract department the supervisor was operating under a 2-year contract, though in others he was on a year-to-year basis.

The registers of deeds who did abstracting usually learned on the job without prior training. But all full-time county abstractors had acquired prior experience either by working under the previous abstractor or for a private office.

Where the register of deeds did the abstracting, he often received a percentage of the gross receipts. In other counties the abstractors were paid a regular salary, ranging from about $2,700 to $5,700 for the supervisor and $2,400 to $4,200 for any deputy abstractors. Most head abstractors received at least $4,000. In one of the larger offices there were six abstractors and several clerical workers. These labor costs constituted the bulk of the expenses of operation, with a substantial part normally being devoted to the process of keeping the abstract books or other indexing systems up-to-date.

Liability on Abstracts Prepared. There is no reported court decision in Michigan that bears on whether a county can be

held liable for mistakes or omissions in county-prepared abstracts. The statutes provide that a county *may* adopt one or two of the following five methods to "support" the "verity and accuracy" of abstracts prepared by its register of deeds or other county abstractor: (1) require abstractor to furnish bond, (2) set aside a certain percentage of receipts from abstracting as a special fund, (3) pledge *future* net proceeds from abstracting, (4) take out insurance, or (5) pledge the "faith and credit" of the county.[11]

Only the first and last of these methods were found to be actually utilized in the counties visited. Normally just the "full faith and credit" of the county stood behind the abstract (though the county abstractor might be held personally liable).[12] In one county a $3,000 bond had been taken out on the register of deeds which expressly covered liability on the abstracts he prepared.[13] Most bonds of registers of deeds and other county abstractors were found to cover only such items as the mishandling of funds. Only one instance of possible liability was found. In this case the county settled the claim out of court, by buying the property to which the abstract related.

In any event, under Michigan law an abstractor's liability is determined and limited by the terms of his contract, expressed (in his certificate) or implied. Unlike a title insurance company, he does not guarantee good title; but there is an implied promise that he has the requisite knowledge and skill, and will use due care to correctly abstract information on recorded deeds and other documents.[14] The abstractor is liable only to the one for whom the abstract was originally prepared (unless stated otherwise in his certificate).[15] It nevertheless appears customary to rely on an old abstract if available (and if considered reliable) plus an extension to bring it up-to-date, rather than to require a completely new abstract.

Uniformity in Preparation of Abstracts. Some of the lawyers interviewed expressed the need for greater uniformity in the abstracts prepared from county to county—whether by county or private abstract offices. This would be especially beneficial for agencies and companies which operate in several counties. While the Michigan act purports to provide a "definite and uniform method" for the establishment and operation of county abstract offices, it does not appear to have accomplished very much along this line.[16] There was a considerable lack of uniformity observed in the county offices visited.

Such lack of uniformity would seem to stem not so much from a lack of conformance with the provisions of the act as from the provisions themselves. No great measure of uniformity can be expected when, for example, the act prescribes just what the abstractor's certificate shall cover but then permits "a certificate of such lesser extent as may be provided" by the county.[17]

[11] It is also provided that a county may authorize all contracts necessary to do abstracting and that each abstract contain a certificate signed by the county abstractor. See Mich. Stat. Annot., sec. 5.1003 and 5.1006. From these provisions it could, though not necessarily would be implied that the legislature intended that a county may be held liable on abstracts prepared.

[12] See *Smith* v. *Holmes*, 54 Mich. 104, 19 N.W. 767 (1884); *Kenyon* v. *Charlevoix Impr. Co.*, 135 Mich. 103, 97 N.W. 407 (1903).

[13] A reliable source reported that this type of bond usually costs about $10 per $1,000 annually.

[14] See *Smith* v. *Holmes*, ante, note 12, cited in *Patton on Titles* (1938) sec. 27. See also *Kenyon* v. *Charlevoix Impr. Co.*, ante, note 12.

[15] If a purchaser of property in Michigan requests an abstract (new or extension) he can assure that any liability of the abstractor will be directly to him if he (rather than the seller) orders the abstract, even though he has the seller pay for it. Otherwise, the abstractor may be liable only to the seller. See *Beckovsky* v. *Burton Abstract and Title Co.*, 208 Mich. 224, 175 N.W. 235 (1913); *Kenyon* v. *Charlevoix Impr. Co.*, ante, note 12.

[16] The act applies to all county-operated offices, whether established before or after its passage.

[17] See Mich. Stat. Annot., sec. 5.1006.

How and Why County Abstract Offices Were Established. In 6 of the 10 counties visited, abstracting has been carried on as a public business in the register of deeds' office since the 1800's. In 5 of these counties this service has since been converted into a separate abstract department—in one case by buying out the only private abstract office in the county. As for the remaining 4 counties, the county started its abstract business in 2 instances by buying out the only private abstract office in the county—in one county as late as 1946. In a third county the register of deeds had been abstracting in the office as a private business and switched over to a public business around 1900. In the fourth county the register of deeds began abstracting as a public business about 1900 and this arrangement has continued.

Among the suggested reasons given by persons interviewed for the change from private to public systems were: (1) dissatisfaction with speed of service, (2) a feeling that the private rates were too high, (3) uncooperative service, (4) discontent concerning the abstractor's monopoly position, and (5) an offer by the private abstractor to sell out. In at least one instance, it was reported that a local farm organization urged the transition.

Costs Involved in Getting Established. Since most of the county offices were established long ago, information on the costs involved was obtained in only 3 counties. (All three were rural counties with a 1950 population of between 25,000 and 35,000.) One county bought out the abstract books of the only private abstract office for about $55,000 (in 1946). Other equipment like filing cabinets and typewriters also had to be obtained, but the abstract books represented by far the major cost item. In the second case, the only private concern sold out to the county in 1925, the county paying around $26,000 for its abstract books. The third county established a separate abstract department around 1934, although the register of deeds had provided a public abstracting service for several years. With the aid of the tract index already available, a card index system was established. This took about three years, at a cost of about $10,000. All but about $500 of this was spent on labor.

In addition to these initial costs, a few county offices were subsidized by the county for a few years before they began to break even. These offices had gone into competition with, rather than buying out, the private abstract office in the county.

Evaluation

On the basis of this limited study of county-operated abstracting systems in Michigan, it would appear that these systems are feasible and that counties possess certain advantages over private concerns for the operation of this type of service. There are, however, a number of possible drawbacks.

There appears to be some basis in fact for most of the six advantages cited by the interviewed lawyers, realtors, and bankers who favored the county system over the private system. County offices were usually found to charge less for their services than private companies, their rates appeared to be slightly more standardized, and their service may in some cases be more prompt and cooperative.

A county abstracting system may be used to particular advantage in some sparsely-settled counties where the overhead would make it difficult for a private office to pay out. Abstracting can often be done more economically and perhaps more efficiently in the courthouse than elsewhere, particularly if it is done in the register of deeds' office. Oft times space,

heat, and personnel may be used which would not otherwise be so fully utilized. Moreover, private offices may have property taxes and certain other expenses not borne by the county and would need to make a reasonable profit, after all taxes, including income taxes. However, it might not be feasible for some small counties to hire a full-time abstractor unless two or three of them collectively employ one abstractor.[18]

The principal criticism of the county system involved an alleged inadequacy of the abstracts prepared by some county offices. But the objection appears to deal more with what an abstract should contain—about which attorneys interviewed held widely varying opinions—than with any inaccuracy of the information provided. The abstracts prepared by most of the county offices visited were considered adequate. Inadequate abstracts could help account for the lower fees charged by a few county offices, though the abstracts prepared by a few other offices—charging no more than average fees—appear to be among the best in the state. If an inadequate abstract fails to reveal defects in the title to property it may cause added difficulty, risk, and expense for all concerned. This may be a high price to pay for a relatively small saving in fees.

In any event, it would be well for the abstractor and local examining attorneys in some counties to get together on how the abstracts prepared might be improved, perhaps calling on their state bar and abstract and title associations for advice. If the abstracts would need to contain even more information to satisfy lawyers, agencies, and companies located outside the county, this might be provided them possibly for an additional charge.

Little quarrel can be had with the contention that abstracting ought to be kept out of politics. In theory the county system, particularly if the register of deeds does the abstracting, could suffer from frequent changes in abstractors (though this was not substantiated by the findings) and from the election or appointment of abstractors with inadequate training. One possible solution to this problem might involve the employment of trained abstractors to work in the register of deeds office under long-term contract arrangements. With this arrangement, certain efficiencies may be gained through the close cooperation of all concerned. But the arrangement would more likely give rise to friction between the persons engaged in the two functions than if an entirely separate abstract office were set up.

There appears to be some, although not much, justification for the contention that some counties are trying to make a profit from the abstracting business. Such a profit where made is, of course, used for public purposes. Nevertheless, there is little justification for the use of county abstracting systems as revenue-raising devices. Any undesirable tendencies in this regard might be alleviated through voter action—through the election of a county board of supervisors pledged to keeping fees charged within bounds—or by appropriate legislation to limit the fees to be charged.

As for other objections, the contention that the county possibly cannot be sued for the mistakes of its abstractor may have some validity in Michigan, since there is no clear-cut court decision on the question. It would be helpful from this standpoint if the Michigan act were

[18] Overhead can be minimized without setting up a county system if the register of deeds is permitted to do abstracting in his office as a *private* business, though he might have a greater tendency to neglect his regular duties. Overhead could also be minimized, to some extent, by providing space for a private abstractor at the courthouse. But the savings might not be passed along to the public unless the county seeks to limit the fees charged.

amended to expressly make the county cover any liability of its abstractor for preparing a faulty abstract, as has been done in some other states. A county would often be better able to cover such liability than a private office.

To the extent that uniformity in the preparation of abstracts is desired, the the county system is not apt to contribute very much in Michigan, unless the applicable statute is amended to require greater uniformity. Few if any of the state statutes that have authorized county abstracting (discussed later) appear to offer very much toward promoting such uniformity.

The contention that it is well to have a separate set of abstract books in a private abstract office in case of fire at the courthouse has some merit. But the importance of this can easily be over emphasized in view of the small likelihood of fire and the availability of fireproof vaults for storing county records.

An important obstacle to the expansion of the county system is the difficulty and expense involved in getting started in the abstract business. The problem is simplified in counties which have a tract index of recorded deeds and other documents affecting title to real estate. It is then feasible, particularly in rural counties, to do abstracting without the aid of additional indexes.[19] This might make it more difficult to set up a completely separate abstract department, but a trained abstractor could be employed to work in the register of deeds office.

A county having no tract index would face more difficult problems in establishing an abstracting system. It would either have to buy out a private abstract office in the county, often on unfavorable terms (a private office having the only abstracting index in the county would be in a particularly favorable position), or go through the lengthy and expensive job of establishing a tract index or some other indexing system.[20] This initial investment may discourage some counties. Occasionally, however, a county may have an opportunity to buy out a private office on more favorable terms.[21]

Other States Authorizing Public Abstracting Services

A few other states besides Michigan have passed laws which authorize their counties to provide abstracting services, usually by permitting the custodian of deeds to do abstracting,[22] although a separate abstract department may be set up in Wisconsin.[23] In a few states the custodian of deed records is authorized (and has the duty) to prepare abstracts in any county which has no registered private abstractor.[24] Under Minnesota law, it is apparently one of his regular duties to prepare abstracts upon re-

[19] This arrangement would often lead to some reduction in a major operating expense (i.e., keeping indexes up to date). It would, however, be necessary to refer back to each recorded document to abstract the necessary information thereby slowing down the preparation of each abstract, while this usually is not necessary where special abstract books or card indexes are used. But where abstracts are prepared directly from the recorded documents the chances of duplicating any errors which may creep into any index are reduced. This latter difficulty has been largely removed in some Michigan counties (but at considerable expense) by photographing all recorded instruments on microfilm and abstracting information from these films. The relative advantages and costs of these various systems should be explored before a county abstracting service is established.

[20] It is doubtful whether a county's condemnation powers may lawfully be used to acquire the abstract books owned by a private concern. See Mich. Stat. Annot. secs. 5.1002, 8.13, and 8.41. The job of establishing an index, as well as the fees for new abstracts, would be less costly if legislation designed to "cure" old defects in titles could also make it unnecessary to prepare complete abstracts.

[21] Legislation permitting state aid to counties to assist them in establishing a public abstract service would help to alleviate these difficulties, but some type of limitation on fees charged might be needed to prevent some counties from thereby making a profit at the state's expense.

[22] See, for example, Smith-Hurd, *Ill.* Annot. Stat. Ch. 115 sec. 23 *et seq.*; *Fla. Stat.* Annot. sec. 703.01 *et seq.* In most of these states the question of establishing such abstracting services need not be first submitted to the voters.

[23] See *Wis.* Stat. 1949, sec. 59.58. Some states, however, may have constitutional prohibitions against establishing a new county office.

[24] See, for example, *Utah* Code Annot. 1943 (supp. 1951) sec. 19-18-15; *Colo.* Stat. Annot. 1935 (supp. 1951) Ch. 45 sec. 89.

quest.[25] It would also be possible, though not necessarily desirable, to enact legislation empowering the state to set up its own abstracting departments in each county, with state-trained personnel.[26] To function well, such an arrangment would require close cooperation between state and county officials.

Several of the state statutes authorizing county abstracting either set the fees or prescribe the maximum fees to be charged for furnishing abstracts of title. Some of the statutes expressly make the county cover any liability of its abstractor for preparing a faulty abstract,[27] and in some states such liability is extended to cover anyone who relies on the abstract to his damage. In other words, the liability is not limited to the person for whom the abstract was originally prepared, as is true in most states.[28]

In some states county abstracting, particularly by the custodian of deed records, might conceivably be permissible without any specific statutory authorization.

(*Private* abstracting by *county* officials is permitted in several states. In a few states, however, legislation has been enacted which prohibits private abstracting by certain county officials, including the custodian of deed records,[29] though in some states this applies only in the more populous counties.[30] This action is perhaps based on the grounds that the pursuits of a private abstracting business would interfere with the regular duties of the county official.)

Regulation of Private Abstracting Businesses

Unlike Michigan, a number of states have turned to statutory regulation of the *private* abstracting business. Some have enacted laws requiring abstractors to obtain a certificate or license. As a part of this process the abstractor may have to submit to an examination by a special state board. In some cases abstractors also are required to post a public bond.[31] And occasionally there are other requirements, such as that abstractors must have purchased or compiled an indexing system (or at least have it 50% completed) before being allowed to do abstracting.[32] A North Dakota statute even prescribes the maximum fees which private abstractors may charge.[33]

In some states a measure of local regulation of the private abstract business may be obtained through limitations upon the private abstractor's access to public records, but there is considerable danger that this device would be used arbitrarily. In an early Michigan case the court permitted the register of deeds to prevent one abstractor from using the public records to keep up his private abstract books.[34] However, this decision was later overruled, the courts holding that an abstractor has the right to use

[25] See *Minn.* State. Annot. sec. 386.37, *et seq.*

[26] The state would be in a better position than an individual county to provide abstracting services free or at nominal cost, if this were considered desirable, and to cover any liability for damages resulting from a faulty abstract.

[27] See, for example, the Illinois and Utah statutes, cited ante in notes 22 and 24.

[28] See the Utah statute, cited ante, in note 24. In a few states it is provided that the statute of limitations does not begin to run against the one who is damaged until the omission or mistake in the abstract is actually discovered—not from the date of the abstract, as is usually the case. See C. P. Flick, *Abstract and Title Practice* (1951) sec. 23.

[29] See, for example, Mo. Rev. Stat. Annot. sec. 13189.

[30] See, for example, Nebr. Rev. Stat. 1943, sec. 76-502, *et seq.* with respect to counties with over 8,000 population.

[31] See, for example, *N.D.* Rev. Code 1943, sec. 43-0101 *et seq.*; *Nebr.* Rev. Stat. 1943, sec. 76-501, *et seq.*; *Utah* Code Annot. 1943, sec. 1-0-6, *et seq.*; *Colo.* Stat. Annot. 1935, supp. 1951, Ch. 7, secs. 1-16; *Idaho* Code, Ch. 54, sec. 101-105; Code of *Ala.* 1940, Tit. 51, secs. 451 and 830 to 851. (Though licensed attorneys need not also secure a license to do abstracting in Alabama.)

[32] See Mont. Rev. Codes Annot. 1947, secs. 66-2111 *et seq.* Such a requirement was held to be constitutional in *State ex. rel. Freeman* v. *Abstractors Bd. of Examiners*, 99 Mont. 564, 45P.2d.668 (1935).

[33] Rev. Code 1943, sec. 43-0111, *et seq.* The permissible rates were amended upwards in 1949 (see Laws of North Dakota, 1949, c. 285, sec. 1.) so that a maximum charge of 75c per entry ($1.50 for the first entry) plus $3.00 for certification is permitted. The constitutionality of this statute does not appear to have been determined by the higher courts.

[34] *Weber* v. *Tounley*, 43 Mich. 534, 5 N.E. 971 (1880).

the public records for such purposes,[35] although reasonable regulations are permitted to (1) prevent interference with the regular discharge of the duties of the register of deeds and (2) protect the records and files.[36]

In Arkansas, while no license is required, the statutes provide that an abstractor be required to post bond before being allowed to have access to the county record books. He must also be a "resident citizen" of the county and of "good moral character and approved integrity." When these requirements are met he is to be allowed free access to the public records.[37] It would be illuminating to know how these various statutes have been working out.

Effect of Title Insurance and Torrens System Upon Abstracting

Title insurance is coming into common use in many localities, particularly in urban areas. However, this often does not dispense with the need for an abstract of title. Insurance companies need information regarding the condition of title to property before they insure it. Where the company is not provided with an abstract for this purpose, the cost of securing an abstract is often passed along to the customers, particularly in rural areas where local lawyers are employed to examine the title. Some companies, however, may make their own title search without the aid of a formal abstract.

The Torrens system of land title registration, if adopted and fully utilized in a given locality, could dispense with the need for any abstracting services whatsoever. Under it the title to real estate, once determined in court, would be transferred essentially like the title to one's automobile. While a number of states have passed legislation to enable their counties to establish such a system, relatively few counties have ever put it into actual operation.[38] Even when they have, it is usually left up to the individual landowner to acquire a Torrens title or not, as he sees fit. If a state or county is looking toward eventually establishing something like the Torrens system, a public abstracting system may or may not provide a desirable interim situation. The costs involved and other factors should be taken into account.

In conclusion, whether governmental operation or regulation of the abstracting business is needed in a given state or locality depends upon individual circumstances. For example, the evidence obtained suggests that most private abstract offices in Michigan are making only moderate profits.[39] State abstract and title associations or other groups may be effecting substantial improvements in the private abstract business in some localities. Nevertheless, several states have passed legislation providing for governmental operation and for regulation of the abstracting business. Such legislation has demonstrated that suitable public action can be taken in any locality in which private abstracting practices give rise to justifiable discontent.

[35] *Day* v. *Button*, 96 Mich. 600, 56 N.W. 3 (1893).
[36] Mich. Stat. Annot. sec. 26.791.
[37] Ark. Stat. Annot. 1947, sec. 71-101, *et seq.*

[38] See J. H. Beuscher, *Farm Law in Wisconsin* (Appleton, Wisconsin: C. C. Nelson Pub. Co., 1951), p. 108. The author suggests certain improvements in the Torrens system as generally applied. Examples of states which have passed legislation authorizing the adoption of the Torrens System (or something similar) are Colorado, Georgia, Illinois, Minnesota, and Oregon.

[39] If in some states the public is inclined to believe that private abstract offices are making excessive profits, they might be required to publish annual financial statements. Such statements would often be for their own protection.

Housing Design and Family Values†

By JOHN P. DEAN*

FOR some years now, thoughtful architects and housers have puzzled about just what makes a house "work." By ingenious speculation on the implications of previous errors they have built up an impressionistic working knowledge of the "Do's" and "Don'ts" of housing design. Periodically they feel dissatisfied with their rules of thumb and turn hopefully to the social scientist for more reliable knowledge about family life so they can achieve a better running adjustment between houses-to-be and family activities.

For the most part, the social scientist has been of limited help. His efforts to be of assistance have generally taken one of four tracks, all of them with shortcomings from the architect's view point:

(a) The social scientist has asked families about their housing "wants" and "preferences." But, as Svend Riemer has pointed out,[1] the person being quizzed is likely to respond with whatever housing wants are currently on the top of his head. Wants satisfied by his current quarters will be overlooked in favor of the wants most keenly felt in comparison, say to what other families on his social range have acquired. And all sorts of intangible values such as owning one's own home or declaring one's status to fellow men are likely to intrude and muddy the waters.

(b) A second approach of the social scientist has been to tackle the problem from the negative side: what are the irritations and pet peeves induced by the house one is living in? This procedure succeeded admirably in getting at the obvious oversights of the architect and builder and has probably been in part responsible for such improvements as the increase in well-planned storage space. Housewives' articulateness about too few closets was beginning to become a market factor.

Comparisons of these two approaches disclose that, by and large, they yield two different types of data: (1) the "wants and preferences" approach gives clues as to sales appeal items that would attract home seekers' attention before *living in the dwelling;* (2) the "pet-peeves" approach reveals obvious malfunctioning features *experienced while living in the dwelling*. Neither of these is satisfactory to the progressive architect; he may feel that the advantages of contemporary design are apprehended through experience living in the dwelling but, since few of his clients have such experience, about all he can do is dangle before their eyes living features that he hopes will counterbalance their spuriously derived "wants," and hope that by this process he can induce them to release him from the shackles of having to design a traditional house.

(c) To fill in the uncharted waters between "wants" and "pet-peeves," the social scientists and architect took to asking families about their actual activities in and around the dwelling in hope that by analyzing these "use patterns" they could infer how well the current quarters "worked" and perhaps design more suitable quarters for other families. Do families actually eat in the

† This article is adapted from a paper presented at a Research Conference of the Social Science Research Council Committee on Housing Research, Ann Arbor, Michigan, May 24-26, 1951.

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[1] Svend Riemer, "A Sociologist's View," paper presented at the 17th Annual Conference, National Association of Housing Officials, October 1950: Publication N 298, *Livability of Housing: What is It?*

kitchen? If so, let's not be middle class, but frankly design kitchens with room for eating. Do working-class families have large over-stuffed furniture that must be allowed for? If so, let's make allowance in our housing projects.

Even this approach has difficulties that stand out. Because of the infinite plasticity of human behavior, different family types seem to adapt their use patterns and housing habits to tremendous varieties of dwelling structures they happen to inhabit without experiencing serious dissatisfactions or deprivations. Let's face it; for most families the inadequate dwellings they now live in *do work*—not perhaps to a nicety or to a progressive architect's sharply focused eye. But it seems that the family's focus, being not nearly so sharp as the architect's, just picks up the crude blacks and whites and evaluates the house in rather gross terms. Much of the detail that goes into precise evaluations of housing operation seems to be below the average tenant's threshold of awareness. The housewife just doesn't know that not having stacking space on the right of the sink makes her take twenty-one percent more time to was dishes.[2]

(d) To undercut this level-of-awareness factor, social scientists have introduced direct observation, inspection, and measurement. Time and motion studies are borrowed from industrial engineers and applied to operations in the kitchen. With this innovation, some of us felt that science had finally arrived on the housing scene. But this approach too readily adopts as its main yardstick *standards of efficient home management.* Tenant, architect, *and* social scientist will probably agree that this is too narrow. True, many aspects of house design and house furnishings are judged by all of us as to whether they aid or impede housekeeping. In the squirrel cage of endless household routines, the objectives of food preparation, dishwashing, bed making, house cleaning, etc. are all fairly explicit. As a workshop where the housewife is employed in daily chores, both house and housekeeper can be evaluated on technological efficiency, long a familiar norm in industrial operations. Rarely applied in the past to the sacred territory of family life, increased efficiency is today a moving spirit of home economics with its "time budgeting," space-and-motion studies, household hints, and time-saving gadgets.[3] One unpublished study pointed out that families with power-driven washing machines spend as much time doing the wash as those with no machines—because machines encourage women to do *more* laundry *more* often.

These studies are valuable; they steadily improve the standards for all sorts of household equipment. But if we were to accept them as the answer to house-family relationships, we would fall into the trap of adopting the standard of evaluation most easily made scientific in lieu of broader evaluations that we all feel are necessary but more difficult to specify.

Perhaps our greatest difficulty in trying to arrive at a more profound understanding of house-family relationships is the confusion we fall into when we try to specify more exactly (a), what it is about family life that we want to relate to housing and (b), what are the variations in housing design that we hypothesize would most affect those aspects of family life that we have specified.

We are faced with exceedingly difficult decisions when we try to choose which

[2] Blanche Halbert, "P.H.A.'s View," paper presented by the 17th Annual Conference, National Association of Housing Officials, October 1950, Publication N 298, *Livability of Housing: What Is It?*

[3] See, for example, Heiner & McCullough, "Analysis of Kitchen Space," *Architectural Forum*, February 1946, p. 155.

values in family life we should plan homes for. Let us assume that we would provide a tailor-made house for every family. To decide what would have to be included in a given house we would want to give consideration to each of the following:

1) Those housing wants clearly recognized by a family as things they explicitly seek (e.g., an eating nook in the kitchen for breakfasts, lunches, snacks, etc.).

2) Those taste preferences (hardly to be dignified as "needs") that would please the family (e.g., Dutch Colonial style with green shutters).

3) Those dimly apprehended needs often overlooked entirely in the expression of housing desires (e.g., privacy for parental discussion, or a suitable study space for teen-agers).

4) Those needs that the architect feels the family should have but of which the family is quite unaware (e.g., careful provisions for safety in the bathroom, on the stairs, and in the kitchen).

5) Those needs that various scientific specialists feel essential to improved family living (e.g., the pediatrician's suggestions for improved infant care, the health specialist's suggestions for lighting).

Each of these various levels of needs may differ for each family member and sometimes will clearly conflict. If the society could provide for each family a fifteen- or twenty-room mansion on an acre of land, the majority of individual and family activities and psychological needs might be moderately provided for. But when it becomes necessary to collapse the twenty-room house into a four- or five-room bungalow to meet the needs of reality, we must choose arbitrarily among the various needs and interests and lop off things that penalize this or that family member and favor this way of life over that. If there is no ultimate arbiter among differences in values, we need, at least, intensive research on the way multiple needs *are* compromised in order to squeeze them into a modest house and try to determine the differential impact on *which* housing values, and of *which* family members.

Such research would indeed be valuable. But it would still be rather limited. It would yield information on how housing design relates to the *housing values*. Evidence is beginning to accumulate suggesting that families are influenced by their living environments in all sorts of ways that neither the family *nor* the architect *nor* the social sceintist was formerly aware of:

(a) Robert Merton found that the majority of residents of Craftown, a planned housing community, were more active politically in Craftown than in the community where they lived before.[4] I doubt if Dr. Merton attributes this change to any specific design aspect of the housing; yet undoubtedly it is related to the changes families moving into Craftown underwent in their new living environment—living environment conceived not narrowly as just the physical housing plant, but broadly as the total socio-physical environment they were exposed to by their change of quarters.

(b) The Massachusetts Institute of Technology study of the Westgate housing development shows that physical layout is clearly related to the patterns of group formation and the social pressures they exert on the residents.[5]

(c) The Collins and Deutsch research on intergroup relations in several mixed housing projects,[6] Merton's study of the racially-mixed Hilltown project,[7] and our own researches on intergroup relations in mixed residential neighborhoods

[4] Discussion with Robert K. Merton.

[5] Leon Festinger, Stanley Schachter, Kurt Black, *Social Pressures in Informal Groups—a Study of Human Factors in Housing*. (New York: Harper & Brothers, 1950).

[6] Mary Evans Collins and Merton Deutsch, "Interracial Housing," three articles in the *Journal of Housing;* January, March, and April 1950.

[7] Robert K. Merton, "The Social Psychology of Housing," *Current Trends in Social Psychology* (University of Pittsburgh Press, 1948).

in an upstate New York community, all concur in finding that the residential environment has a marked influence on race attitudes and friendship formation between the races.

(d) These studies also agree in finding that residential propinquity is a major determinant of friendship formation, however unaware of it the residents may be.

(e) The importance of seeing the influence of the residential environment in these broad terms is pointed up by a consideration of a community we have been studying in our intergroup relations research. The community is composed of 400 or so families that interact closely. A community center promotes a local contact point for members of the community, especially teen-agers, and provides program activities that bring members of the community together. Social pressures operate within the community to bring about participation and conformity much as in a rural village. Over half of the members of the community belong to four organizations or more. Observers agree that it is a well integrated community.

From this description we can see that this community must have a housing layout that encourages social interaction, much as the Westgate or Craftown housing projects do. Actually, there is nothing of the sort. These are the 400 Jewish families in Elmira scattered as they are throughout the 18-20,000 families that make up the city. It is unusual for more than a few to live in any one neighborhood and even then Gentile families far outnumber them. For most of these families changing their place of residence from one neighborhood to another would have little effect on their social interaction or the social environments to which they are exposed.

Now what are the implications of these various findings? First of all; they suggest that we might pose the problem of relating housing to family life much more broadly. Instead of merely trying to relate *housing* design to *housing* values, we should relate the whole socio-housing environment to the residents' total scheme of values. We should ask what are the basic value patterns of individual family members and how, in this particular housing environment, do they become converted into a characteristic way of life? One finding emerging from our community studies seems rather patent when stated, but is of basic importance to these considerations of housing research: most people in patterning their daily activities develop a sort of "Indian path" that they tread from home to work, then back to home, then to lodge meeting, back to home; on Sundays to church and back, and then perhaps a visit to close relatives. Then the pattern repeats. Once developed, most persons stay on their Indian path and only once in a while get off into the forest where all the rest of the hustle and bustle of urban life takes place. Each person's Indian path is different from all the rest and there is all manner of variety in the range and types of Indian paths. But for the typical person, the Indian path is a rather narrow walk of life that exposes him to two or three, maybe four, different social environments; that's all. All of these environments bear down upon him with their social pressures, their group processes, their standards of attitudes and behavior. From time to time the Indian paths are modified by major transitions or crises in people's lives: births, deaths, changes of marital status, and changes of job. But perhaps the most frequent alterations in Indian paths take place as a result of changes in dwelling place, that in turn induce

changes in the Indian paths of family members and the social environments to which they are exposed.

If these considerations hold true, the greatest influence of housing design on family life is the way it modifies the number and kind of social environments to which family members are exposed. A change of residential environment will usually alter the social interaction of family members not only among themselves but also most especially their social interaction in the surrounding neighborhood and in the community at large. Thus we would hypothesize that the following aspects of housing design are most crucial to family life:

(a) The location of the dwelling unit with regard to other major social environments where family members participate (or would be likely to participate). These include especially the play centers, the schools, the work place of the father, the church, social, economic, and political organizations, informal contact centers outside the neighborhood, close friends, and relatives.

(b) The orientation of neighborhood dwelling units to each other and to local neighborhood contact centers.

(c) The extent to which the housing design encourages or discourages performance of the living functions within the dwelling space or outside the home through congregate facilities or special *ad hoc* arrangements.

(d) The ways in which the style and plan of the house are related to the interaction of family members with each other and with their close personal contacts outside the home.

The remainder of this paper will be devoted to spinning hypotheses on (b), (c) and (d).[8]

(b) *Tentative Hypotheses about the Influence on the Family of the Orientation of Dwelling Units to Each other, and to Neighborhood Contact Centers*

Neither the internal organization of the dwelling unit nor the specific functions allocated to it is, probably, as influential in exposing family members to new social environments as the way the dwellings are grouped with regard to each other, to the local contact centers and to the prevailing ways of circulation. As Professor Kennedy has pointed out about the Westgate project, "These building relationships are of the greatest importance socially and . . . are major determinants in friendship formation and thus social groupings."

In speculating about the implications of the studies that show the almost incredible influence of proximity upon friendship formation, we are drawn again and again to analogies reminiscent of gravitational theory. It almost seems sometimes as though two neighbors are attracted to each other directly in proportion to their common social characteristics and inversely as the square of their distance. If we could only reduce differences in social characteristics to a function of social distance we could derive our whole theory of neighboring from Kepler's law, pack up our things, and go home.

Unfortunately it's never that simple in social science. But it is worth speculating for a moment on the importance of neighborhood in drawing family members into new social relationships. We might hypothesize the following as of major importance:

(1) proximity of the dwellings to each other;

(2) the recurring contact opportunities that arise out of circulation;

(3) the location of casual contact centers that bring people together; and

(4) the existence of community facilities and leadership that encourage the formation of associations drawing memberships from the neighborhood.

Given these, residents with a normal quantum of sociability, a lapse of time for recurring contact opportunities to

[8] (a) is not covered here because another session of the Conference where this paper was presented was devoted to it.

bring residents together and we can guarantee that many family members will be drawn into new social environments. And as Festinger et al. have so well demonstrated, the social pressures of those groups may be a powerful influence in molding members' attitudes and behavior.

A few other hypotheses about this process:

(a) The more heterogeneous a neighborhood in the social characteristics of its residents, the more likely it is that friendship formation will depend most on organized associations, somewhat less on informal contact centers, and very little on sheer proximity.

(b) The absolute number of families in an area (above, say, fifty families) has little to do with the amount of friendship formation, since friendship is related to the number of recurring contact opportunities between families, not the number of families. London Terrace, the densest block in New York City, provides each resident recurring contact opportunities with just a few neighbors. The Elliott Lovejoy Houses just a few blocks away has many fewer families, but the recurring opportunities for contact for each family touch many more neighbors.

(c) Families with value orientation patterns and activity patterns "anchored" (to borrow Festinger's phrase) outside the neighborhood are less likely to be drawn into friendship formations by recurring contact opportunities.

(d) For family members in a given neighborhood setting, the recurring contact opportunities (for adults, anyway) and the social pressures of group formation sort out the congenial social environments to which residents will continue to be exposed. The cycle of social environments a person passes through during the course of his day-to-day living (i.e., his "Indian path") tends to rigidify and limit the number of new, recurring contact opportunities and therefore the likelihood that the person will become exposed to new social environments.

How much a housing development becomes an isolated social island in the urban environment depends on (1), the differences in social characteristics between the housing tenantry and the residents of the surrounding neighborhood and (2), the ratio of the recurring contact opportunities tenants have to meet *each other* to the recurring contact opportunities they have to meet *residents nearby*. The housing design features that are most crucial are those that affect the differential availability of local contact centers to project tenants and nearby residents.

(c) *Tentative Hypotheses on the Effect of Allocating Various Living Functions to the Dwelling Unit or to Congregate Facilities Outside the House*

"Home" as a *locus* of family activities is frequently confused with "family" as a set of interacting loyalties and activities among family members *regardless of where they take place*. On the Cornbelt family-farm, this confusion causes no trouble. But as the twentieth century developments in communications, mobility, special interest groups, technological innovations, and community services increasingly release activities of family members from a particular locus, it becomes possible, theoretically at least, to maintain family interaction without recourse to the traditional housekeeping dwelling. For many husband-and-wife families, affectional, companionship, recreational, aesthetic, and personal values within the home are balanced by a wide range of pursuits outside the home, such as occupational advancement, participation in community affairs, sports and other forms of recreation. Families with such value patterns might favorably eval-

uate living arrangements that involve shared or congregate facilities for many of the burdensome household tasks, with the functions of the dwelling unit *per se* (—but not necessarily the space requirements) reduced to include only a privacy area for sleeping, dressing, toileting, sex relations, and personal care of the children; storage space for frequently used articles; and an immediate living area (preferably involving both indoor and outdoor space) for adult leisure and child play, for personal expression through decorating, arranging, and miscellaneous puttering, and for informal social life and entertaining. The major items of furniture and equipment could be furnished or built-in. Dwelling units such as these would satisfy family requirements only if good congregate facilities were provided for food preparation and its serving; call-for-and-deliver services of all kinds; housecleaning services; library and study areas; recreational facilities; community and clubrooms.

Like life on a college campus (sometimes deep in the city) congregate facilities would encourage informal social interchange among congenial persons of roughly the same age and status and would facilitate a wide range of contact, more casual "dropping in" and "visiting," softball, cards, or horseshoes, the casual chitchat of chance meetings while going to and fro, and the satisfactions of occasional impulsive "doing things together." Solitary walking, hanging around to watch, and just sitting and doing nothing would still be available to those who valued them. Today they are more often the symptoms of widespread social isolation and barren personal lives.

Congregate living arrangements are not generally considered satisfactory for promoting the values of family life, perhaps because we associate them with situations where there are inadequate provisions for intimate affectional needs (orphanages, poorhouses), insufficient personal freedom (prisons, mental hospitals), inadequate provision for a minimum plane of living (concentration camps, municipal lodging houses), or inadequate provisions for privacy (army barracks, college dormitories). Where these objections do not apply, congregate living arrangements could cater to a large number of customers among families such as the following: professional couples with husband and wife frequently engaged away from home; graduate-student couples; elderly couples; full-time working couples; husband-wife combinations active in community affairs; mothers who want greater freedom from the double task of housekeeping and child care; career wives; families with an indefinite future; cosmopolitan couples (citizens of the world); families wanting to "travel light," unburdened by accumulated possessions; transients; families with individuated life patterns (Bohemian or other); uncongenial mates with separate discourse groups; and finally, but not to be underestimated, wives whose value patterns just devaluate housework.

Many busy families undoubtedly look upon the traditional housekeeping tasks with distaste; an increasing number o them may wonder if housekeeping is a necessary burden. For most of them the answer is probably "Yes." Set firmly against any attempt to alter the home by emancipating *from* it some of the activities now assigned *to* it are numerous cultural sentiments that reaffirm the traditional housekeeping dwelling unit inherited from the family farm, the plantation, and the old homestead; the stress on family sanctity; the belief in family independence and self sufficiency; the urge for ownership of property and possessions;

and the need to protect the privacy of family life.

Where these values are deeply held, the traditional housekeeping dwelling will continue to fill the bill but, as the tug of war between "home" and the "outside world" becomes intensified, sharpened conflicts about the housekeeping functions of the dwelling will increasingly stand out. We can already see symptoms of this: (1) sentimental and not too cogent rationalizations in support of the traditional home; (2) halfway measures such as furnished apartments with maid service, frequent eating out, once-a-week cleaning ladies; (3) intermittent escapes into the luxury of congregate living in hotels, vacation resorts, shipboard life, and house parties. Experiences such as these may increasingly modify family members' evaluations of the labor standards and working conditions that prevail for full-time housewives. If a greater range of dwellings were planned with some congregate arrangements, we could perhaps find out how considerations of this sort fit into the values of American families.

Of course the allocation of the major clusters of family living functions to places outside the home can vary all the way from complete congregate facilities with little provision for privacy at one extreme, to the complete housekeeping dwelling unit at the other. In between lie all sorts of halfway measures that might be suited to families in special circumstances.

From the point of view of how housing influences family life, congregate facilities are important because they usually expose the user to a new social environment. Take the day nursery for instance. The World War II employment emergencies forced many mothers to park their children in nurseries while they worked. Regardless of whether the nursery school was a good one with trained supervision or an *ad hoc* retention device to get Jimmy off mother's hands, the social experience with a significant peer group often was influential in the youngster's life. Likewise congregate arrangements such as joint recreational facilities, joint dining facilities, joint study areas, even joint bathing facilities—each of these could modify the social interaction of family members quite substantially and revamp their significant social environments. Conversely, installing in the dwelling unit an entire productive workshop for the housewife may reduce her social participation and bring about increased exposure to soap operas, television, or True Story. These, too, will have their impact.

Even though we are in agreement that the architect should try to understand the overall value pattern of family members, how shall we answer this query: "What can you do when the family members themselves are in conflict or in doubt about their own values?" Take the role of the wife in a modern family.[9] She may be pulled several different ways by the goals that her background and training have induced in her. American women are often caught among several incompatible roles that they expect themselves to play.

If, for instance, a wife values highly a *Hausfrau* role that stresses her functions as cook, waitress, chambermaid, cleaning lady, laundress, seamstress, social secretary, and general housekeeper, the home would be evaluated by her as a productive economic workshop where she would want to be employed as efficiently

[9] For more extended discussion see: F. Lundberg and M. F. Farnham, *Modern Women: The Lost Sex* (New York: Harpers, 1947), especially chapters V and IX; M. Komarovsky, "Cultural Contradictions and Sex Roles," *American Journal of Sociology*, November 1946, pp. 184-189; and three articles on age and sex roles in the *American Sociology Review*, December 1942, by Ralph Linton, Talcott Parsons and Leonard S. Cottrell, Jr.

as possible. The full housekeeping dwelling unit would best suit her orientation. But if the wife values more highly her role as an up-to-date mother and accepts her biological destiny in order to contribute to the next generation, she would evaluate favorably those living arrangements that provided: nursery-gymnasium facilities, equipment to care for infants, arrangements easy for supervising child play both inside and out, durable furnishings to withstand rough treatment by her wild Indians, and protected areas for adult quiet and privacy. If the wife is a status striver who stresses her role as *socialite*, the acquisition of possessions, decor, manners, and mannerisms to induce favorable reactions in the eyes of significant others, the house would be appraised according to how well it met the social demands of decorum and partying. The wife who is a *careerist* has to subordinate some of the more traditional feminine duties in order to pursue her job goal full time. Her evaluation of the living arrangements might well stress the amount of personal and housekeeping services that could be shifted outside the home: and so on for the glamor-girl role, the companion-to-the-male role and all the other permutations and combinations of role emphasis that American womanhood reveals in its value patterning. Until value conflicts that are embodied in these incompatible roles are resolved, it is hard to know what activities the dwelling should be planned for. Meanwhile we need to study how different living arrangements facilitate or impede segmental role behavior and heighten or lower the conflict tension.

The wide variations in over-all value patterns are probably more important in determining levels of satisfaction and dissatisfaction with living arrangements than details about kitchen layout or plumbing. If we hypothesize that among the many different types of value patterns found in today's family life, the following type-clusters are frequently discernible; then it may be worth guessing at a few of the housing implications that flow from these value patterns.

Cluster of Family Values[10]

Familistic type:

Strong in-group feelings and identification with the family name, family traditions. The integration of individual activities for the attainment of family objectives. Money and possessions conceived as family property, with understanding they may be used for the support of individual needs. Concern for family perpetuation and defense of members from outside attack.

Integrated Individualized Type:

Cooperative furtherance of member's self-realization of his potentialities and objectives. Coordination of family activities for the attainment of individual ends. Some property family oriented, but also some emphasis

[10] Each of these types should be considered merely an *ideal* typical construct that is only more or less approximated in any real life setting.

Examples of Use Patterns Flowing from This Value Orientation

1. The family is the basic social unit. Other social ties subordinated to family coherence.
2. Large families, much intradwelling unit interaction, heirlooms and possessions.
3. Many group activities, family occasions, special holiday celebrations and the family council.
4. Major housekeeping tasks performed in the dwelling unit. (a good bet for home ownership of the family homestead variety).

1. Frequent interaction of family members with other institutions.
2. Easy come and go, informal entertaining, segregated leisure activities.
3. The gearing of simultaneous individual pursuits, with appropriate privacy, space, and eqguipment
4. Servicing the family at home with simpli_

on individual possessions. Individual rights given in return for individual responsibilities. Mutual concern for individual happiness.

Emancipated Type:

Personal pursuit of individual goals to the exclusion of (or conflict with) other family members. Coordination, if any, from individual realization of personal benefits from cooperation. Individual property with little or no obligation to family welfare. Heavy concern for self-interest, with the troubles of others conceived as their own responsibility.

Status-striving Type:

Pursuit of career success and secure social position, and the accoutrements of status and prestige. Activities of individual family members are scanned with an eye to how they reflect upon the family status, strong encouragement to competitive success in community affairs.

fied economic tasks (a good bet for a modern house of contemporary design).

1. The integration of individual activities in social groupings outside the dwelling.
2. Minimum of activities in the home, which becomes primarily dormitory in function.
3. Maximum personal privacy, separate breakfasts, snacks and sleeping times.
4. Housekeeping service, delicatessen meals, call-for-and-deliver services (a good bet for congregate living facilities).

1. Activities of family members organized for the pursuit of extra-family goals.
2. Frequent social entertaining and much attention to well appointed house furnishings.
3. Planning by the social calendar, hospitality and the well-stocked larder and sideboard.
4. Maid service where possible (a good home with appropriate status symbols).

Just a word about the status strivers. With the importance economic class carries in assigning family prestige in American society, it is natural that class competition enters into the evaluation of the home and its furnishing. Since major criteria of class status in urban America today are financial standing, occupation, and social background, the status-striving family naturally converts these into tangible assets that reveal their aspirations, if not their achieved goals. As a repository of family traditions and possessions, the home helps to peg one's social class at the highest economic level the family achieved in the past. This situation probably explains why many families claim higher social class than economic class.[11]

Through heirlooms a family can borrow heavily on the class standing of its forebears. And the active trading in antiques auction sales, and second-hand shops suggests that more than a few families have discovered that recently won purchasing power, through the home one presents to friends, can be converted into a beguiling bluff of social background. Perhaps these are among the reasons that status strivers cling to the symbolism of the traditional home and appear to be relatively unimpressed by the contemporary architect and his more functional wares.

Any such over-simplified picture of the relation of family values to housing use patterns can be no more than suggestive. The main point is that such value clusters are important in determining just what a family puts in and takes out of a given set of living arrangements. Just how value clusters align themselves in real life is a field task to be determined by empirical research.

[11] When people are asked with what income class they identify themselves and with what social class they identify themselves (upper, upper-middle, middle, lower-middle, lower); 54 percent give the same income and social class, 3.2 percent give an income group one or more steps higher than social class, 42.5 percent give a social class one or more steps higher than the income class they give. Hadley Cantril, "Identification with Social and Economic Class," *Journal of Abnormal and Social Psychology*, January 1943 (inpaged reprint).

(d) *Tentative Hypotheses on the Relation of Intra-dwelling Unit Interaction to the Values of Family Members*

Interaction among family members is determined much more by the personalities and role patterns of the mates than by the physical house they inhabit. The major role patterns that gear interaction derive from emotionally-laden learning experiences that are deeply grounded in the past and resist modification. Hence, families will generally force their patterns of role interaction into a given dwelling unit and accept minor inconveniences and hardships in order to maintain their interaction patterns. In other words, the *use* patterns of family members are probably more important than the design per se in determining how well the dwelling "works" for a given family.

In large part, the housing use patterns seem to be symptomatic and symbolic of family relationships and can be used as a diagnostic tool for understanding the family; but we can hypothesize that intra-dwelling unit variations probably have little significant influence on family relations unless they promote the exposure of one or another of the family members to a new social environment. This *does* occasionally occur—for instance, when overcrowding or other substandard living conditions induce members out of the house to the ball park, the street corner gang, or the barroom.

But, by and large, the architect in designing the individual dwelling unit is mainly concerned to plan for the maximum convenient housing of the family's established activity patterns (or "use patterns").

Since families compress their multiple needs into houses that are limited in one way or another, they develop their patterns of use haphazardly and unreflectively. Frictions in the use of the dwelling unit are bound to arise. Being close to the scene and unsensitized to these problems, family members often have serious blind spots in understanding these frictions, especially when they are deeply related to personality needs.

Much of the friction derives from the the different ways family members evaluate their homes and living arrangements because of differences in their value patterns. If the wife is especially sensitive to what her social callers will think of the living room decorum, but the husband is inclined to make use of it for his own spontaneous relaxing and cluttering, we are likely to see the fur fly.

On the basis of a pilot study[12] into the values of family members that are most frequently invoked in evaluating the living arrangements, the writer hypothesizes the following values as most salient:

1) Does it (a given aspect of the living arrangements) promote or impede the *efficient operation* of household tasks? (See above.)

2) How does it look to friends or relatives or others whose opinions matter? Household arrangements must frequently undergo the test of "How would it look to others?" or "Is it presentable?" This *norm of decorum* regulates most rigorously and consistently those areas of the house most likely to fall under the scrutiny of outsiders.

3) Does it hamper attempts to live up to accepted *moral standards about family living*, especially what family members expect of each other as mother or father, husband or wife, son or daughter? Quite naturally living arrangements provoke moral reactions whenever the touchy objects of sex, elimination, child training, and allocation of household responsibilities are involved. Differences in family background and early childhood conditioning frequently endow spouses with

[12] Financed by a Social Science Research Council post-doctoral research fellowship (unpublished).

quite different reactions to nudity and exposure, dressing, and undressing, personal privacies, or property rights.

4) Does it facilitate or inhibit the *spontaneous personal reactions and activities* of different family members? Individuals differ widely in personal interests, aesthetic tastes, habits of relaxation, reactions to dirt and cleanliness, tidiness and clutter. Yet these are the recurring standards of reference for many aspects of the living arrangements.

Today, despite serious overcrowding and doubling up, our house production machinery continues to offer more and more small houses and apartments. Within the limited universe of the dwelling unit, the concurrent application by family members of different value standards to the quarters, activates "household tensions;" i.e., conflicting evaluations of the different aspects of the living arrangements. As one respondent in the pilot study remarked: "My wife is an efficient housekeeper and keeps things a little neater than I do, although I also am rather intolerant of a 'messy' house. My wife is more interested in keeping clean any part of the house that might be exposed to the public eye; on the other hand, I have to constantly clean out and rearrange our storage closets because of the lack of orderliness in putting things away." These differential reactions vary from minor preferences in personal tastes to deep and abiding rifts in personality needs. Because the home and the furnishings persist through time, differences about the living quarters are recurring sources of friction; the dwelling unit sometimes becomes a constant sniping ground for interpersonal hostility. Much of the friction in the dwelling unit can be explained by the various counter pulls among *efficiency, decorum, spontaneity, and morality.*

It may be worth offering a few tentative hypotheses as to what happens in an intra-dwelling unit when there are conflicting evaluations of the dwelling arrangements (and family tension of this sort is virtually universal).

1) Where the conflict becomes intense, the use patterns tend to modify into a different space-time pattern that reduces the friction and is less destructive to family morale. There are at least four common types of patterns to resolve these household tensions: (a) spacial segregation, (b) time scheduling, (c) functional differentiation of occasions or objects, and (d) dominance and exercise of controls.

2) Where family feeling is relatively harmonious, competing uses for space in the home will most frequently be resolved by scheduling different times for the competing uses. But where family conflict is more intense, family members tend unconsciously to "stake out area claims" and defend these territories as private domains. The allocation and defense of territorial boundaries frequently results from a test of power after which some bargain or balance may be achieved and maintained by "power politics." The greater the conflict, the more institutionalized and inviolate the delineated areas tend to become. Insofar as special segregation is institutionalized and accepted, the various family members expect and demand service from the ruler of the domain. It becomes "keep out and I'll tend to it" rather than "you know where it is, get it yourself." The bargaining process that grows up in such circumstances tends to instate a system of parallel rights and duties in the household.

3) Where conflict prevails and space is seriously limited the husband may yield to the wife's traditional role as housekeeper, and delegate all matters of house-

keeping and decorating to the wife. Or if the wife's emphasis on decorum is all-consuming, she may just "take over" and establish controls over neatness and decorum.

4) A most tension-provoking value conflict that prevails in many of today's middle-class homes is the conflict between decorum and spontaneity. The living room of a small house is frequently given over to decorum and maintained in shipshape condition right around the clock. Family members, especially children, may be kept out, controlled, or inhibited against a free and easy use of living room. Under these circumstances the kitchen and bedrooms tend to become the casual living areas. In the Victorian house this rivalry between decorum and spontaneity was resolved by segregating a "parlor" as well as a "living room." Today's increasing demand for "rumpus "rooms or "playrooms" probably reflects the channeling of spontaneity away from the living room (today's "parlor") toward more flexible spaces.

5) Many of the conflicts between spontaneity and decorum are resolved by differentiating "everyday" furnishings from "guest specials." This arrangement most commonly applies to furnishings that are breakable, soilable, or non-durable and therefore worth preserving in good condition to impress guests. Some families have special guest silver, guest dishes, guest towels, guest doilies, bath-mats, guest everything. As guests get on a more familiar relationship with the family, the guest specials are gradually dropped. Where many of the household furnishings or arrangements are differentiated as "good" and "everyday," spontaneous entertaining of the "come-back-and-have-a-bite-with-us" or "let's-go-over-to-our-house" variety becomes inhibited because of the necessary changes that have to be made. Some families will maintain the living room constantly guest-oriented and if unexpected guests descend on them, make a few quick bathroom changes and then differentiate by using their "good" service ware. Where the differentiation is extreme, entertaining of any kind may become a major household chore. This guest-oriented decor is reflected en famille in the use of the "good" furnishings for family use only on special occasions or when the family members feel festive. Fear of breakage usually inhibits everyday use. The guest specials frequently symbolize new role and status relations to the children: "having company," being hospitable, learning to differentiate what is acceptable en famille but not in the presence of company. Because the child doesn't discriminate well at first, the use of guest specials may call forth embarrassing comments from the children.

These speculations about family values and intra-dwelling unit interaction have been spelled out in some detail in order to suggest how varied are the ways in which personal values are engaged in the evaluation of living arrangements.

What are the possibilities of making research headway on these problems? In terms of the scientific techniques we have so far developed: excellent—depending primarily on administrative will to get the answers, and a modest budget to back up researchers in gathering and analyzing the data.

Architects and housing administrators deplore the lack of scientific knowledge that would help them make decisions on the location, size, and dwelling design of their projects. The architect can often advance equally cogent reasons for making decisions that are diametrically opposed. When such is the case—and doubtless it frequently is—the research imperative is clear: design half of

the dwellings one way, the rest of them the other way and phone for the nearest social researcher.

Experimental opportunities like this are rare in the annals of social research design. The psychologist of family life cannot get half of the mothers to overprotect their children, half the mothers to be permissive; the race relations researcher cannot get half of his sample to mingle socially with Negroes, the other half to avoid contact. But in housing research we have research designs by the bushel. Half of the units of a project, half of the building structures, perhaps half of the projects under joint supervision, could often incorporate the experimental variables, the other half omit them and thus be the control group.

The objection may be raised: if the experimental way of design is better than the other, doesn't this just guarantee that half of the dwellings will have the inferior design? Casting research designs in reinforced concrete is a pretty expensive way to find out, isn't it? The answer is this: such research designs should be used only when there is genuine lack of knowledge as to which design practice is superior. When such is the case, the half-and-half research design at least guarantees that half of the dwellings will have the *superior* design—and strongly increase the chances that by the time of the next building operation, scientific findings will reinforce the superior alternative for *all* the dwellings.

Why is it that architects and housing administrators are so reluctant to experiment forthrightly in this way? Perhaps they are resting on the false assumption that all-or-none decisions based on guesswork are not experimenting. At least, the all-or-none procedure is reassuring in that it makes it impossible to ascertain the limits of architectural doubt. It also guarantees that the frontiers of that doubt will not be pushed back by the slow accretion of scientific knowledge.

The Agrarian Reform in Italy†

By CARLO VANZETTI* *and* FRANK MEISSNER**

LAND reforms can be roughly divided ito two categories: (a) the peaceful, and evolutionary and (b) the violent and revolutionary. Italy chose the first method—an approach which requires much time and patience but yields lasting benefits. The government studied the problems carefully so as to adopt the best solution suited to the country's specific economic, social, and political circumstances.[1] All persons affected by the provisions of the reform were heard, their opinions and suggestions considered. Tolerance rather than class hatred, due process of law rather than injustice, and expropriation with indemnity rather than confiscation became the maxims to be followed.

The Land and the People

Italy has an area of about 116,000 square miles, almost 80 per cent of which is in hills and mountains. The land is generally poor. Fertile soil is to be found only in parts of the major valleys with alluvial deposits. Rain is scarce, ranging from 35 to 20 inches per year from north to south. Precipitation is unevenly distributed falling mostly during the winter months. This is particularly serious in the South. Under these conditions, Italy must feed 46 million inhabitants with a density of 396 per square mile and extremes of 971 around Verese to 850 at Padua.[2] This compares unfavorably with the United States average density of 51 inhabitants per square mile.

The constantly increasing population has forced people to seek relief in three major outlets: emigration, reclamation works, and industrialization. Emigration was particularly important between 1880 and 1920. This movement started again in 1948, especially to the countries of South America. But emigration can hardly be considered a solution in any social sense. In order to "employ" as many people as possible in farming, legal provisions were also made which would force commercial farmers to retain a certain minimum number of workers on the land regardless of whether the labor could be kept busy or not.

A more positive approach was the extensive government-sponsored land reclamation program which was to enable a more intensive crop cultivation. This development is similar to that carried on in Holland, a country even more densely populated. Vast areas of Italy were originally covered with swamps (some saline, some acid), marshes, and wastelands with brush. Reclamation has brought into cultivation a great part of the Po Valley, Pontine Marshes, and Maremma and the Tavoliere of Apulia. Benefits of irrigation were brought to the north, to the hot deserts of the south, and to the islands. In large areas with need for drainage or possibilities of irrigation,

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[1] The professional polemics preceding the reform are fully described in M. Rossi-Doria, "Considerations on Agrarian Reform in Italy, *Proceedings of the Seventh International Conference of Agricultural Economists* (Oxford University Press, 1950) pp. 299-314. See also M. Bandini, "The Principal Problems of Italian Agriculture," *Proceedings of the Seventh International Conference of Agricultural Economists* (Oxford University Press, 1950), pp. 197-201.

[2] Under the category of trees or tree cultures, olives, grapes, firewood, and shade trees.

projects have been either already completed or are in the process of development. Sometimes it is a question not only of executing the projects once for all but of doing them over and over again. This happens in the case of peat lands where considerable settlement occurs each year causing disruption of the drainage systems. Finally, industrialization has helped to absorb a part of the peasant population surpluses.

Of the total land ares, 51.2 percent is used for agricultural purposes. It must be noted that about two-thirds of the croplands are planted with trees. However, since only 21 percent of the acreage is located on level lands, the remaining land under intensive cultivation is composed of hill or mountain fields, partly of poor productivity. The specialized fruit cultures contain 2,513,000 acres of vineyards and 2,092,000 acres of olive orchards, while the rest is in miscellaneous fruits. Cereals are cultivated everywhere with a regional specialization of winter grains in the dry farming districts of the South and rice in the Po Valley. Wheat predominates with 11,678,000 acres in 1951 and a production of 7,607,000 tons. Although the over-all average yield is 13.4 bushels per acre, there are considerable variations by localities as indicated by the 60-bushel average in the Po Valley and 120-bushel extremes. Corn, with 3,131,000 acres cultivated, is concentrated in the North, especially on the irrigated lands. Potatoes, tomatoes, and cabbage predominate among truck crops which totaled 1,804,000 acres in 1951. Commercial crops are represented by hemp—148,000 acres—cultivated in Emilia and Campania; sugar beets—484,000 acres—concentrated in the Po Delta and in the Padana Valley; and tobacco—143,000 acres—cultivated nearly everywhere but particularly in Apulia and Lucania.

The problem of livestock raising is the most serious one in Italian agriculture. With only 181 head of cattle per 1,000 inhabitants (compared to 531 in the United States), an increase in total numbers is dependent on extended cultivation of forage crops which, in certain areas, is possible only by means of more intensive irrigation and other large capital investments. The total number of cattle in 1951 was estimated to be 8,347,000 head; in addition, there were 1,933,000 horses, burros, and mules; 9,646,000 sheep and goats; and 3,709,000 hogs.

The fact that Italian imports exceeded exports by about 100 billion lire in 1951 is due to the country's inherent raw material deficiency. As for agricultural products, Italy is a large importer of wheat—one million metric tons in 1950—and exports truck crops, fruit, hemp, and cheese.

Land Property and Land Tenure

After the fall of the Roman Empire and the barbarian invasions, feudalism spread in Italy as in the other parts of Europe. Free land was scarce because most of it, made up of forests and pastures, formed part of vast royal or ecclesiastical domain. Mandatory attachment of the workers to the land (servitude) was instituted.

TABLE I—Land Utilization in Italy

Land classification	1,000 hectares	1,000 acres	Percent of total
Cropland	13,031	32,200	43.3
Vineyards and orchards	2,387	5,898	7.9
Pasture and range	5,167	12,768	17.2
Forest	5,617	13,880	18.6
Uncultivated but productive land	1,555	3,842	5.2
Special use and miscellaneous	2,345	5,796	7.8
Total land area	30,102	74,384	100.0

The process of freeing the land was stretched over many decades. The allodial (lien free) properties began to expand while the stipulations of emphyteusis[3] created an intermediate category of large and medium landowners. But, while in the south of Italy the Norman lords maintained their positions almost intact, in the central and northern parts feudal privileges gave way little by little under the energetic drive of the population. Many church properties passed into the hands of various categories of persons for very nominal rents. These people set themselves up in an intermediary position between owner and operator, the latter of whom was burdened with very high rents. A slow process of abolition of feudal privileges continued despite the resistance of the vassals and princes. The French Revolution and the Napoleonic campaign in Italy brought about a final blow to the feudal system.

The French Convention (Congress) took away the authority of feudal landlords in the countries liberated by Napoleon's army. Deeds of trust and rule of primogeniture were suppressed. Ecclesiastical domain was secularized largely by the state taking over the property. Emphyteutic leases were discontinued. Vast private and common lands in northern and central Italy became private freehold property.

Although the movement contributed to the formation of an active class of landowning peasants, the South witnessed great landowners taking the place of feudal lords, thus limiting the property owned by small holders who, on account of capital shortage, were prevented from acquiring sufficient land.

In the North, however, the movement towards the formation of small holdings continued. This situation has been helped along by two important factors: (1) high prices for agricultural commodities caused by food shortages during World War I, and (2) savings from Italians who migrated overseas. Some of the emigrants returned after they made money enough abroad to be able to buy farms at home. Most of them sent money back to their parents and relatives after they established themselves successfully in the New World.[4] After World War I, with continued inflation and high prices, the northern small holders and farm workers thus acquired some 2,500,000 acres. But this did in no way alleviate the position of the southern peasant. It looked as if some land reform would be necessary.

Certain legislative proposals were made, but nothing ever became of them. Governmental activity was turned to reclamation and colonization. The term reclamation implied not only drainage and irrigation but any form of development and improvement (construction of housing and roads, drilling of wells for potable water supplies, provision of electrical power, planting of trees, and subsoil plowing). The participation of the government was assured by statutory provisions of the Reclamation Law of 1933. This law established criteria for government subsidization of reclamation projects and soon became a model for similar legislation in other countries.

[3] Emphyteusis is a form of tenure based on ancient Roman law. In modern usage it ". . . can be compared to a lifetenancy. Under its terms the cultivator or tenant is granted a parcel of uncultivated land—bare, or with a few trees—on condition that he carries out, within a given period of time, certain improvements (in most cases the planting of vines and olive trees) and maintains the land in proper state of cultivation. Duration of the lease is perpetual, and security of tenure is guaranteed. The rent is always in kind and consists of a predetermined share of the products, which varies from one area to another, and is usually related to the natural productivity of land." A Medici, "Land Property and Land Tenure in Italy," *Edizione Agricole*, (Bologna: 1952), p. 87.

[4] For a comprehensive description of these property transfers, see A. Lorenzoni, "The Formation of New Small Holdings in Italy After the War," *Proceedings of the Third International Conference of Agricultural Economists* (Oxford University Press, 1935), pp. 178-192.

Peasant holdings established after World War I, with the war boom savings and "emigrant money," proved to have a remarkable degree of stability. Most of them survived the depression of the early thirties. This situation, unfortunately, did not repeat itself after World War II. Although war profits were again considerable, a runaway inflation deprived people of any incentive to save. Moreover, some political parties promised the peasants free land. Many war savings also were disposed of in quite unreasonable ways with the purpose of evading the heavy taxation of war profits.

This generally negative trend had one exception in isolated mountain communities. There the propensity to save was retained, and land sales were carried on at an almost normal rate.

Following the Armistice, it became obvious that the government would have to "do something."[5] All political parties, regardless of leanings, carried the land reform issue in their platforms. The left wing parties talked about over-all socialization and distribution of the land. The right wing parties were, however, able to reach a compromise according to which only "idle" lands or mismanaged lands could be expropriated. Owners with "excessive" properties were to sell their surplus acreages on the open market.

To make the problems even more complicated, Italy turned from monarchy to a democratic republic in 1947. A new department was established (Ministerio della Costituente) with the sole purpose of working out a new constitution. The National Institute of Agricultural Economics (Istituto Nazionale di Economia Agraria, INEA) was then created and charged with the task of assembling and interpreting relevant data pertaining to land property and tenure. This information was first used in forming Article 44 of the new Constituiton, which gave land reform almost a "Bill of Rights" status.

The INEA investigations were based on the Italian land register (cadastre) system. It was thus possible to determine the classification of owners according to size of real property, acreage, and taxable income. This latter information provided an indication of what might be termed economies of scale or intensity of cultivation, features which mere acreage or tenure data would not reveal.

The resultant statistics show that 39.4 percent of the total area of Italy was in properties larger than 100 hectares (247 acres). If we subtract properties owned by public and private corporations, only 25.9 percent of the land remains in private ownership in this category. Still, this particular figure does not mean much unless the regional distribution is considered.

Thus, we find 23.7 percent of the agricultural area of the Po Valley in large intensively farmed holdings. In the Alpine region, 18.6 percent is in forests and pastures and can be run only in large units. A concentration of big farms can be traced in the islands (30.9 percent in Sicily and 26.6 percent in Sardinia); 38.7 percent in central Italy; and 28.8 percent in the South. If we use 500 hectares or more as measure of "really" large holdings, then the national share of

[5] Although it appeared that problems connected with the land were of fundamental importance in any plan of reconstruction, some economists claimed "that no sweeping solution of the agrarian question could be found. General agrarian reform in the usual sense would not solve the problem in Italy. The upsetting of the delicately balanced agriculture of the Plains of Lombardy and of sharecroppers' farms of Tuscany and Piedmont would be a serious mistake. Reclamation appeared to offer the greatest promise again as it had in the battle of grain a few years earlier."

The late Mayor Fiorella H. LaGuardia of New York, while admitting that it was none of his business, urged redistribution. "Peasants north of Rome, taking a leaf from the lives of the Sicilians of a generation earlier, distributed among themselves some 600 acres belonging mainly to the Prince Torlonia. Renewed illegal occupation of land by landless peasants in Sicily led to a new outbreak of peasant unrest there in the fall of 1946." V. A. Moody, "Europe's Recurrent Land Problem," "*Agricultural History*, October 1948.

the total agricultural area in this size declines to 8.6 percent. The regional concentration in central Italy, Sicily, and the "deep" South becomes much more distinct.

Holdings between 2 and 100 hectares occupy 46.9 percent of the area while holdings of 2 to 25 hectares take up 30.6 percent. The category of holdings of less than 2 hectares occupies 13.7 percent of the area. Among these small holders, we will find flower farms in Liguria and citrus orchards in the South—operations intensive enough to provide a satisfactory income for the whole family. However, in the Alpine regions this size provides less than a subsistence. In between the extremes we find part-time farmers who derive the largest share of their income from work in industrial enterprises and the tiny Sardinian holdings where fishery is an important source of livelihood. How extremely small a holding can get is best illustrated by the fact that we know of cases where one single olive tree has been shared by four different owners.[6] By now, the reader should be impressed with the extent of the regional diversities hidden behind the otherwise unimpressive statistical tables.

TABLE II LAND DISTRIBUTION BY TYPE OF TENURE*

(*in percent of total area*)

Owner-operation	73.7
Peasant	30.1
Capitalist-peasant	3.7
Capitalist operating with labor furnished by:	39.9
(1) Share tenants on appoderate lands	15.0
(2) Share tenants on nonappoderate lands	5.7
(3) Sharecroppers	2.2
(4) Wageworkers	17.0
Tenancy	26.3
Peasant	14.8
Capitalist-peasant	3.9
Capitalist operating with labor furnished by:	7.6
(1) Share tenants on appoderate lands	0.4
(2) Share tenants on nonappoderate lands	0.9
(3) Sharecroppers	1.1
(4) Wageworkers	5.2

If we examine holdings with 100,000 lire or more of taxable income per year, we find relatively many of these firms to be in the Po Valley (16.9 percent of the total taxable agricultural income of the area). Central Italy is second with 12.6 percent for the region; Sicily and the South have only 9.7 percent and 8.7 percent, respectively. The income of 100,000 refers to the 1937-1939 basic period and would represent 2,400,000 lire in the inflated currency of 1952. This represents a purchasing power of about $4,000 per year and includes neither management returns nor interest on the capital investment.

* The Italian usage of the terms *peasant* and *capitalist* is somewhat confusing. A peasant operation approximately designates (in American terms) a subsistence family farm with occasional sales of surpluses. A capitalist peasant operates a family farm with some hired labor and considerable marketing of produce. An American commercial family farm in the Corn Belt would conceptually be close to the term. A capitalist owner-operator does not perform any manual labor and his activities are mostly managerial and supervisory. The tenant-capitalist-operator usually has a lease on the land from an absentee landlord and carries share tenants and share-croppers on a sublease. If a capitalist tenant operates the farm exclusively with wageworkers, he might occasionally do some work himself although, as in this case, his major activity is managerial. The terms are by no means clear-cut. One most often encounters combinations in tenure as well as operation form. This presents real classification difficulties—one of the many dilemmas facing a census-taker. *See* Fnte. 8.

[6] That this phenomenon is by no means unique to Italy, but is found in several European countries, has been shown by a British agricultural economist (in 1938) who pointed out that in France "a single vine plant . . . constituted a 'farm' . . . and a nut tree [was] shared by three cultivators." Quoted from A. Whitney Griswold, *Farming and Democracy*, (New York: Harcourt, Brace & Co., 1948), pp. 87-88.

Farm Labor Problem

Share tenancy is widely scattered[7] all over Italy. It is particularly often found on lands "appoderate" with high per-acre capital investments throughout. In the central and northern parts of the country, from the standpoint of economic "weight" and social stability, it is a very important form of tenure. Economically less influential but frequently occurring in the South are share tenants on non-appoderate lands. The balance of the area is in the so-called "capitalistic"[8] production class.

This type of farming is most widespread in regions with dairy farming which include the reclaimed lands of the Po Valley, in central and southern Italy, and on the islands.

If then we classify the land by type of labor performed on it, we will find that 52.5 percent of the arable or productive land is operated by "peasants"; 15.4 percent is worked by laborers under long-term contracts, which provide good social standing in the community. The security of tenure creates a great attachment to the land.

The employer-employee relationship is less fortunate on lands nonappoderate worked by share tenants (6.6 percent) and share croppers (3.3 percent). The most serious employment problems are created on the 22.2 percent of the land tended by wageworkers. The labor available for each worker does not provide a steady income on which a family could be supported. This "rural proletariat" problem is particularly serious on the reclaimed lands of the Po Delta, in Calabria, and some parts of Maremma.

If we consider the distribution of land according to ownership, we will find that 73.7 percent is operated by owners, 23.6 percent by tenants.[9]

Statutory Provisions

The land reform entails essentially two problems: (a) subdivision of large landed estates, and (b) consolidation of excessively fragmented holdings. The need

[7] If agricultural workers are share tenants on lands which are divided into self-sufficient, self-contained or at least family subsistence-providing units, then we use the term, lands appoderate. The ancient share tenancy contract "contratto di mezzadria" specifies the provisions of produce distribution between the landlord and his tenant. In most cases, it implies a mandatory 53 percent of the crop going to the tenant worker. The operating costs are often split on a fifty-fifty basis which is also typical of our own Corn Belt. If the tenant owns livestock, then the whole livestock proceeds will accrue to him. A fixed rent on pastureland is paid.

The holdings are most often well stocked with buildings, farm as well as residence, and tree plantations. The contract thus provides a security and stability in line with traditional British tenant-landlord relationship. Professor Medici said that in ". . . central Italy and the Emilian Hills it forms the basis of farm enterprise. The system of production is the fruit of centuries of arduous land improvement rendered possible by the united efforts of landowner and peasant. . . . A ". . . cordial collaboration. . . ." (p. 130)

To define share tenancy on land nonappoderate, we just put a "not" in front of all the adjectives pertaining to appoderate lands. The lands are usually of poor productivity, undeveloped, the contract temporary and unstable—producing a kind of glorified migratory worker.

[8] The term means only that the manager, regardless of whether he is proprietor or tenant, employs outside labor (permanent, seasonal, or daily). A pure "capitalist . . . entrusts exclusively to others, outside his family, the execution of the manual work." A "capitalist-peasant operator . . ." is a farmer ". . . who besides contributiong his own work and that of his family, employs outside labor, permanent or casual, in an amount exceeding twenty percent of the total labor required; . . ." Medici, *op. cit.*, p. 207.

Among the workers, a great hierarchy of titles exists, all according to work performed. The permanent workers have usually a yearly contract, and their jobs are specialized (herdsmen, for example). Such workers and their families, usually live on the "cascina" (a place on the estate, around which livestock barns, machine sheds, residence buildings, and kitchen gardens are concentrated). The dwelling is a part of the wage in kind. The "fattore" is the "executive" manager (or deputy boss, if you please.) who has no fixed working hours and whose pay is based either on the area under cultivation or a percentage of the proceeds. "Capo cavallante" is in charge of horses; "Capo bifolco" looks after the cattle and is also in charge of the "Capo mungitore" (head milker and his crew—"mungitori"). The "mandriani" (or "manzolai") takes care of the breeding stock. Medici, *ibid*, p. 150.

In the field work sector, we find the tractor driver and "comparo" in charge of the irrigation system. His job is considered to be highly skilled. The comparo activity is particularly important in the districts between the rivers Sesia and Adda in northern Italy characterized by "marcite" and rice fields. (Marcita is a permanently irrigated meadow.) Then there is "compagnone"—the watchman. The unskilled laborers "respond generically to 'peasant'." They are called upon to tend the crops and do miscellaneous work around the farm. Medici, *ibid*, pp. 170-171 and 173.

[9] Criteria for ownership classification are given in some detail in Medici, *op. cit.*, "Note on Method," p. 203-210.

for subdivision was so apparent that the issue became a standard slogan in platforms of most political parties. The consolidation question was and is a political tabu. Although it is generally realized that modern, mechanized farming cannot be practiced on tiny plots of land, the dilemma lies in the fact that consolidation would result in a decrease of the total number of holdings. This means a lessened opportunity for establishment of independent land ownership and, consequently, would enhance the pressure on the land. The politicians had, therefore, to make a choice between either economically feasible measures or politically expedient procedures. Most parties "solved" the problems by ignoring it.

In an overpopulated country, support for a subdivision of large estates is easily rallied. It was facilitated in Italy by the virtual land monopoly which large estate owners had in certain regions of the country. The absentee landlords have frequently kept their lands in extensive cultures, even if natural fertility would warrant intensive rotations.

It would, however, be unjust to consider the Italian land reform as solely motivated by political and social pressures against the big landowners. The "class struggle" aspect is only being emphasized by the Communists. The recognized major objective is to enhance the the productivity of the soil. The expropriations are only a means of obtaining this objective.

The "solution," therefore, became a compromise between all powerful interests involved. The statutory provisions were enclosed in special bills:

(A) The Sila Act of January 12, 1950 refers to a specific region of southern Italy—the Sila Plateau and adjoining territories. It provides for expropriation of lands which are in excess of 300 hectares (740 acres) on single estates. The expropriation indemnity is computed according to valuation of the property for real estate tax in the 1946-47 period. The payments are made in government bonds carrying 5 percent per annum and redeemable in 25 years.

The Agency for Development of Sila (Opera per la Valorizzatione della Sila) has been entrusted with the administration of the Act.[10] The territory affected by the Act embraces some 534,000 hectares. The Agency is responsible not only for the expropriations but also for the distribution and reclamation of the land. Were it not for the emphasis on the improvement and reclamation feature, the reform in the Sila region would be a mere redistribution of the land property. The land is not productive enough in its "natural shape" to warrant an intensive operation. To bring it up to par requires per-acre capital investments so large that it makes the improvement prohibitive on an individual basis.

(B) The Stralcio Act of October 21, 1950, is a forerunner of the general land reform bill. No maximum property limit is established, but progressive acreages are expropriated according to: (1) owner's income from the entire property as shown in the Italian land register on January 1, 1943, and (2) the average per-hectare (2.47 acres) income from land under cultivation. Productive but idle land plus forests are excluded here.

Most of the information necessary for the land reform assessments was found in the Italian land register.[11] The most important expropriation criterion is the magnitude of owner's per-hectare taxable income from the land.

[10] A summary of the major statutory provisions are found in Ministero dell' agricolture e delle foreste, "La Riforma Fondiaria nella Maremma," *Roma-Grosetto*, September 1952, p. 53.

[11] For example: (1) physical description of the property, (2) boundaries and acreage contained, (3) "natural" productivity of the soil, (4) a "potential income" assessment accruing from the individual land parcels to (a) the landlord, (b) the operator.

To give the reader an impression of the way by which what percentage of the farm's total arable land is to be expropriated, we look at some examples:

Properties with 30,000 lire or less of total taxable income are exempted from expropriation. Properties with income between 30,000 and 60,000 lire are exempted only if their average per-hectare income is more than 400 lire. If the average is 400 lire, 15 percent is expropriated; if only 200 lire, then 55 percent of the land is expropriated. Low average per-hectare income means more hectares per farm unit. For example, a 60,000-lire income at 400 lire per hectare means a holding of 150 hectares. At 200 lire per hectare, it means a holding of 300 hectares. Thus, the larger holdings (in hectares) are drawn upon more heavily, paying due consideration to their income-producing capacity. If the property has a total income of 70,000 lire, then the first 60,000 lire are accorded the regular 30,000 to 60,000 rates, plus special and higher rates on the residual 10,000 lire, etc. It is apparent that the tables showing the expropriation percentage are incredibly complicated. The schedules have been determined with great care. No matter how elaborate the design, cases will be always found which do not fit into their proper "boxes." But the very existence of the tables removes some of the arbitrariness and haphazardness which the process inherently entails. It gives the administration "a mathematical criterion" (see Table III).

The landlord whose land has been partially expropriated cannot acquire rural property to exceed 750 hectares (1,850 acres) for six years following the effective date of expropriation. This provision is to prevent new and excessive accumulations of land by the original owners.

The law provides expropriation exemptions for estates which have proved to have a highly efficient and intensive operation. The "efficiency" is measured by criteria such as good housing and stable contracts for the share croppers, high productivity of the lands with yields at least 40 percent above the regional average.

TABLE III—"EFFECTIVE "EXPROPRIATION RATE
(*in percent of total acreage: lire*)

Total taxable income from the property (thousands of lire)	Average per-hectare taxable income									
	1,000 and over	900	800	700	600	500	400	300	200	100 and under
0–30	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
30–60	.....	.....	.....	.....	.....	0	15	30	57	70
60–100	.....	.....	.....	.....	0	10	30	60	70	85
100–200	35	40	47	55	60	65	70	75	84	90
200–300	45	50	55	60	65	70	75	80	87	95
300–400	52	57	60	65	70	75	80	85	90	95
400–500	60	64	66	71	76	80	85	90	95	95
500–600	64	70	76	78	80	85	90	95	95	95
600–700	68	74	79	82	85	90	95	95	95	95
700–800	72	78	82	85	90	95	95	95	95	95
800–900	76	82	86	90	93	95	95	95	95	95
900–1,000	82	86	90	93	95	95	95	95	95	95
1,000–1,200	90	92	95	95	95	95	95	95	95	95
Over 1,200	95	95	95	95	95	95	95	95	95	95

Source: Ministero dell' agricoltura e delle foreste, "La Riforma Fondiaria nella Maremma," *Roma-Grosseto*, September 1952, p. 36.

A certain minimum number and quality of livestock and machinery are considered desirable—so is the presence of local industries processing agricultural produce (wineries, sugar factories, canneries, etc.). Partial exemptions are also granted to owners who undertake officially recognized reclamation and improvement projects, supervised by the Reform Agency. There is nothing automatic about the exemptions. A detailed application stating all the relevant facts and figures has to be submitted to the Department of Agriculture by the owner. Each case is carefully considered and ruled according to its merits.

The indemnity payments, similarly, as in the case of the Sila law, are made according to the taxable value established in 1946-47 for the "extraordinary proggressive tax on real estate and personal property values" and are guaranteed by redeemable state bonds. The expropriated lands can be assigned only to landless hired farm workers or peasants whose holdings do not contain enough acreage to support a family. The sale contract spreads the payment over 30 annual installments. The fee simple is retained by the Reform Authority up to the day of full repayment. The sale price cannot exceed 66 percent of the costs of improvement projects instituted on the land minus the state contribution and the expropriation indemnity.

The Reform Authority has an obligation to turn the land over to the farmer in "usable" shape. This means that irrigation and drainage, sufficient buildings, potable water wells, roads, trees, or plantations have to be provided on areas which are in need of such improvements.

While the improvement projects are being carried out, the Reform Authority must see to it that the peasant gets the necessary technical education which might enable him to utilize up-to-date production methods. Organization of all kinds of cooperatives (sale, purchase, machinery) has also to be prepared by the Authority.[12]

In the first months of 1951 the Legislature passed provisions which delineated the specific areas affected by the land reform. New administrative bodies were created where none were available. Otherwise, already existing units were made responsible for additional work. The agencies are: (1) Agency for the Settlement of the Po Delta, (2) Agency for the Settlement of the Tosco-Latium Maremma and Fucino. (3) Agency of the National War Veterans Project for the Reform in Campania. (4) Agency for the Development of Irrigation and Land Redistribution in Apulia and Lucania. (5) Agency for the Development of the Sila (for which the original territory was extended). (6) Agency for Land and Agrarian Development in Sardinia and Autonomous Agency for the Flumendosa District.

The Reform on the island of Sardinia operates under special provisions and by special agency which differs somewhat from the nationwide standards. Excluding forests and irrigated fields, all properties above 200 hectares are subject to expropriation. An emphyteutic transfer of the excessive lands or an outright sale can exempt the owner from the reform provisions.[13]

The individual local agencies are supervised by a national Land Reform Advisory Board consisting of representatives for all concerned interests. The Chairman of the Board is nominated by

[12] In the South, a special long-term credit agency (Cassa del Mezoggiorno) has been established by the state to facilitate the financing of local and regional improvement projects. For a more detailed account, see Ugo LaMalfa, "Touch-and-Go in Italy," *Foreign Affairs*, January 1953, pp. 257-267.

[13] Many of the appropriations are provisional and will be changed according to need. For the near future, they are, however, considered sufficiently large to permit a successful implementation of the reform provisions.

the President of the Republic. The reform is financed by funds appropriated in three legal provisions: (1) Act Number 230 of May 15, 1950, which assigns the amount of 15 billion lire to be used over a six-year period. (2) Act Number 646 of August 10, 1950, providing 280 billion lire to be used throughout 10 years by the Cassa per il Mezzogiorno Authority—an agency which allocates funds for reclamation improvement and public works in southern Italy and the islands. (3) Act Number 647 of August 10, 1950, which was assigned 7 billion lire to execution of reform and public works projects in northern Italy. This appropriation will be renewed each year and the exact amount determined according to need.

Administrative Considerations

The diversity of ecological and sociological conditions under which the reform is to be carried on defies description. Scarcity of investment capital and local land property concentration is common to most of the areas concerned.

A short description of the three main regions (Po Delta, Tosco-Latium Maremma, and Sila) will give the reader an indication of the difficulties encountered by the reform agencies.

(a) *The Po Delta.* The Po Delta region covers 827,800 acres most of which, by elaborate drainage projects, were reclaimed from swamps. Some 640,000 acres are cultivated while 86,000 acres are in farm ponds with commercial fish cultures, the balance being wasteland. There are 337 people per square mile. The agricultural labor force of 106,000 workers (43,000 of whom are men) can find work for only about 200 days of the year. In view of the fact that 257 working days are considered sufficient to provide a tolerable level of living, we realize the seriousness of the underemployment problem. Holdings exceeding 200 hectares (approximately 500 acres) occupy 54 percent of the total area. The land is prevalently operator-owned (59 percent of the enterprises.) Hired workers, many of them under cooperative share-cropping arrangements, are employed on 62 percent of the area.

The large reclamation expenditures have made the land high priced and consequently caused a very intensive cultivation per acre. Erection of buildings was for a long time neglected, leaving the lands with great housing shortage. Neither were there sufficient funds available for planting of trees (fuel, shade, fruit) and other improvements necessary for optimum utilization of the reclaimed lands. Furthermore, the large number of share croppers has created an unstable and undesirable social structure—rural slums, to put it bluntly.[14]

The most frequently grown crops are sugar beets and wheat, with only 15 percent of the acreage in forage. Livestock husbandry has, therefore, reached a modest extent with some 115,000 head of cattle, 16,000 horses and mules, 39,000 hogs, and 24,000 sheep and goats in the whole region. Unless a more efficient way of washing out the salinity of the reclaimed lands is found, it will be difficult to enhance the acreage in forage crops.

The present reform plans would create family farm units of 3.7 to 4.0 acres. Family dwellings and barns, roads, and potable water supplies will be furnished by the Agency. Considering that drinking water has to be brought to each home by aqueducts, one can imagine how expensive this settlement might be. The "displaced" hired labor force should find temporary employment in the

[14] The American audience has been presented with a highly dramatic version of the problem in the controversial Italian film, "Bitter Rice." Although unduly pessimistic, the movie indicates the kind of situation which the agrarian reform intends to remedy.

Agency-sponsored improvement projects. Later on, the intensification of livestock breeding should create some few new jobs; so will the new tree-planting activities as well as the planned increase in truck gardening. The total area subject to expropriations covers, according to December 31, 1951 data, some 155,700 acres with another possible addition of 19,900 acres, which were abandoned following the floods in autumn, 1951.

(b) *The Tosco-Latium Maremma.* The Tosco-Latium Maremma region covers 2,454,000 acres, practically all of which is under cultivation. There are 148 people per square mile, and 73 percent of the land was in holdings of 247 acres or larger. Of the land, 61 percent is operated by owners or appoderate sharecroppers. Only some 16 percent of the area is level. The rest is hilly and cultivated extensively in rotations of cereals, forage, and fallow. The climate and soil are favorable for vine- and olive-growing. Livestock breeding is developed (104,600 head of cattle, 720,000 sheep and goats, 70,000 hogs, and 38,000 horses, mules, and burros). However, in order to be able to devote more forage feeds to the production of meat, a considerable mechanization is necessary.[15] This, plus an extension of tree plantations, should make it possible to create family farm units from 5 to 20 acres in size. A great deal of new residential building would alleviate the present housing shortage. The existing drainage system, aqueducts, and general reclamation works also rerequire considerable revising. An extension of poultry raising would be another means by which much family labor could be profitably absorbed.

The expropriation provisions affected (as of December 31, 1951) 549,000 acres; 56,800 acres have already been occupied. The first grant distributed 6,318 acres to 554 families.

(c) *The Sila.* The Sila territory a part of Calabria and Lucania in southern Italy, extends over 1,423,000 acres, 420,000 of which constitute the generally hilly Sila Plateau. The region comprises coastal plains and foothills which are in cereals, vineyards, chestnuts, and olive groves. There are 168 people per square mile, most of whom live in large villages. The shepherds leave their animals for the plateau pastures in early spring and stay there all through the grazing season. Villagers go out to their scattered fields each morning to return in the evening after having spent hours in getting to and from the job. This traveling effort constitutes a tremendous waste of time and energy. It is a typical phenomenon in Mediterranean countries.

The property concentration problem is very serious; 137 individuals owned more than 400,000 hectares or nearly 30 percent of all the agricultural land in the region. The semiarid climate permits only a dry farming rotation of wheat, horse beans, and fallow, plus some cultivation of wine and olives. The irregularity of precipitation makes even these crops rather risky. Lending agencies are, therefore, reluctant to invest in farm real estate loans. The farmers are under such severe capital rationing that their level of living is even below the hand-to-mouth standard. Opportunities for outside employment are practically nonexistent. The objective of the land reform will, therefore, entail nothing more and nothing less than a disassociation with most past sociological patterns prevailing in the region. The farmers will have to leave the villages and virtually homestead the new, reclaimed areas by irrigation, drainage, and other improvement works. The state will see to

[15] The recently established machinery pool with 374 tractors is a step in the right direction.

it that buildings, tree plantations, roads, and potable water will be provided.

Some 200,000 acres were originally considered for expropriation. By the end of 1951 about 140,000 acres were already taken over by the Reform Authority, and some 82,000 acres has been assigned to 7,116 peasant families. The vastly varying soil types made it necessary to make allotments in scattered plots so as to give the family a possibility of growing diversified crops which might assure (a) more steady utilization of labor throughout the year, and (b) sufficient cash income.

The above account of the tremendous regional differences should make it clear to the reader that there is no ready-to-use nation-wide reform rule which could be applied everywhere and that each region represents peculiar problems of its own.

Financing Procedures

The way in which the funds are collected and allocated can be well illustrated by referring to the procedures used in the Sila region.

The Reform Authority has estimated that an average of 124,680 lire per acre will be necessary for investment on expropriated lands. The national government contributes through legislative appropriations about 38 percent of the amount. This reduces the cost to the Authority by 47,500 lire to 77,300 lire. The former owners, however, have to be paid an average indemnity of 26,600 lire per acre which must be added. This requires the Authority to foot a bill of 103,900 lire for the expropriation and improvement of one acre. The recipients pay 66 percent, or 69,200 lire, for the land. This latter sum is to be amortized over a period of 30 years at 3.5 percent interest or a charge of about $5 per acre per annum. It is realized that the beginning farmer will be particularly hard up for cash during the first two years. Only interest on principal will be required, thus reducing the effective amortization period to 28 years. Short-term production credit is provided by special farm credit agencies.

The larger part of 1951 was spent by most regional reform agencies in planning activities. A detailed registry of local lands subject to expropriation had to work out provisions for reclamation projects. Rigid time limits for this planning period were fixed by law. In 1951 the Po Delta program was temporarily suspended on account of the serious damages caused by the fall (1951) floods. In Maremma, Fucino, Apulia, and Calabria, the first lands were assigned according to schedule, the ownership situation changing virtually hourly.

Extent of the Reform

There are some 21 million acres in regions affected by the reform; 1,841,000 acres are directly subject to expropriation (or 8.8 percent of the whole area); 669 applications for expropriation exemption were received. Even if we deduct the lands eligible for exemption, the expropriated area will exceed the 1,483,000 acres which has been established as the official goal. In 1951 a total of 122,336 acres (see Table IV) was

TABLE IV—LANDS ADMINISTERED BY EXECUTIVE REFORM AGENCIES: DECEMBER 31, 1951.
(all acreage expressed in hectares; one hectare being 2.471 acres.)

Total acreage under administration	8,448,968
Acreage in holdings liable to expropriation	741,234
Percent of total acreage	8.8
Actual acreage expropriated	148,804
Acreage assigned to peasants	122,336
Number of peasants receiving land	42,864
Average acreage) in hectares	2.9
assigned) in acres	7.2
Number of requests for exemption submitted to the agencies	669

Source Istituto Nazionale di Economia Agraria, *Annuario dell Agricultura Italiana*, Vol. v, 1951 (Rome: 1952).

assigned with an average of 7.2 acres per family. It is, of course, far too early to attempt an evaluation of the results achieved so far. Such a thoroughgoing land reform has many implications. It will take several years before the first fruits can be harvested.

Conclusions

Whether the Italian land reform was a success cannot, as yet, be determined. We can only compare with reforms carried through in other countries and then draw tentative analogies.

As could be expected in a parliamentary democracy, the final formulation of the reform bills was a result of prolonged and heated discussions between representatives of widely diverging viewpoints. The result was a compromise.

It seems to be a relatively satisfactory compromise. The fact that the reform is being carried through rather slowly with compensation to the owners of expropriated lands is a good sign. It is particularly important to note that the redistribution of the land is only one of the objectives. The far more important goal is to help the new farmer make a go of it once he is settled on the land. This can be achieved only when enough production credit is provided. The government also sees to it that the land is reclaimed and improved before being occupied. An extension service tries to carry know-how to the settler so as to make possible a larger and more efficient production. New cooperative processing and marketing associations should then assure profitable outlets for the surplus produce.

The land expropriations are not carried out indiscriminately. Model estates, with high productivity and good labor conditions, are being exempted from the subdivision.

Despite the honest efforts of the administrative agencies to do a good job, much criticism has arisen against the reform in general—the enforcement in particular. Some of the criticism stems naturally from people with a chip on their shoulders, so to speak. For the most conservative elements, the reform seems revolutionary and heading for failure. The extreme leftists do not consider the provisions radical enough.

Other critics maintain that the efficiency of agricultural production will be ruined. With small family farm units the advantages of economics of large scale will be lost. The units, it is predicted, will provide no more than a mere subsistence. And even if a production of specialized commodities would be facilitated, would there be any outlet? Furthermore, the employment created by enhanced numbers of independent farm units will not affect the labor market to any significant degree. The work on the family farms will be done largely by women and children. Most of these points are to some extent valid but can easily be overdone. One has to keep in mind that only about 8 percent of the country's area will shift ownership.

The influence which this transfer can exercise on the over-all economy of the country is, therefore, limited. It will neither ruin Italy, nor will it be the universal panacea. It will be important politically. Revolutions are taking place usually in countries where a great underprivileged class suddenly becomes conscious of its latent powers. There is much misery in Italy. Nobody will deny that. But the fact that the reform is a tool used in the process of improving the common man's lot might give the rural proletariat hope and confidence that somebody is trying to help. In the constitutional democracy's fight for survival, the reform might be an invaluable psychological weapon.

Land Redistribution and Industrial Development

By V. WEBSTER JOHNSON* and JOHN E. METCALF**

IN the newly developing areas of the world—the so-called underdeveloped areas such as South and Southeast Asia, the Middle East, and parts of Latin America—between 60 and 85 percent of the people earn their livelihood directly from the land. And in substantial parts of these areas nearly all the people are closely associated economically and culturally, in one way or another, with agricultural life and land use. One outstanding characteristic of all these areas is that ownership and control of land is to a large extent in the hands of persons other than those who cultivate it. Large agricultural estates are common, but they are operated primarily as small tracts farmed by tenants and sharecroppers. And small landowners are frequently little better off than tenant farmers or laborers, since credit and marketing operations are in the hands of money lenders and middlemen who exercise dominant control over owner-operated family farms. It is this type of tenure and credit system that has given rise to social unrest and even violent social upheaval.

The introduction of Western civilization with its system of legal rights and commercialized production into these underdeveloped areas has weakened the security and stability of farm families through breaking down the protective system formerly provided by village communities and a patriarchial society. In the growing absence of this kind of welfare protection, farm families are forced more and more to seek their own individual security or to suffer further from hunger, poverty and exploitation. To meet this new situation, the peasant is seeking and even demanding the ownership of land, inproved land tenure relationships, and changes in credit and marketing methods. It is true that their desires may not be too well articulated, nor are they always expressed in specific demands for well-defined action programs; nevertheless, an awakening has taken place in underdeveloped areas.

Landlords in these areas have acquired a dominant position in rural society, thus permitting exorbitant rentals (ranging up to 75 percent of gross farm produce) which leave the tillers of the land little more than the means of bare subsistence and nothing with which to acquire small landholdings. Land is the major form of capital, and its ownership has been passed on with little change from one generation to the next. The relatively high return to landlords from their landholdings, due primarily to their position of control, affords a good life and even luxuriant living but, nevertheless, does not leave much for further capital accumulation. This predominating pattern of lopsided land ownership and income distribution tends to hold the economic situation in a static state, thus retarding economic development and deterring those few with liquid capital from venturing into industrial pursuits.

It is not that there are no substantial opportunities for economic development. In the countries of Southeast Asia, for instance, sizable areas of land could be brought under cultivation and great undeveloped natural resources including minerals could make for an expanding economy. These countries produce about

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90 percent of the world's rubber supply, 70 percent of the copra, 90 percent of manila hemp fiber, plus the as yet only partly exploited resources of petroleum, tin, bauxite, and gold, in addition to undetermined quantities of manganese, chromium, tungsten, lead, zinc and nickel. Iron ore and coal are in short supply, but the potential for hydroelectric power development is generally good. There is room for a considerable expansion of income and employment just in primary processing of raw materials, both agricultural and mineral, now exported in their crude state; and with any increase in economic activity there is bound to be a substantial increase in the demand for building materials, the components of which are locally available—lumber, sand, clay, limestone, etc.

In the underdeveloped countries it is the limited capital accumulation in the face of strong social rigidity that tends to hold back economic activity. The rapid increases in population have been such that this alone readily takes up the limited yearly increment to total capital accumulation. Indeed, economic growth is so slow that the pressure of population on developed resources sometimes forces down even further the level of living. The economic, social and political aspirations of the people are thus retarded by the need for a program of (1) agrarian reform and (2) industrial expansion.

It is well recognized that agrarian reform is not a panacea for all the ills of underdeveloped countries, even though at times various land reform programs appear to have been regarded as a complete solution in themselves to the problem of depressed rural living conditions. But, where there is a very limited opportunity for land ownership and an outdated tenure system, land reform is socially desirable, even if not a universal curative. To the peoples of underdeveloped countries, land reform has real meaning; and whether or not others may agree in toto with specific land programs underway or proposed, is not basically material. People are striving for human advancement, and as a part of this task the free nations must support democratic land reforms or likely lose out in strategically located underdeveloped countries of the world.

One type of land reform currently under way and in various stages of operation is that in which governments take possession of large land holdings and redistribute them in small tracts mainly to present tenant cultivators. Basically, a land redistribution program should involve: (1) the purchase of large landholdings by the government at a fair price and under reasonable arrangements; (2) the sale of this land to occupying tenants at a just price and at favorable terms; and (3) purchase and sale arrangements that are in the interest of the economy as a whole.

A first step to such a land redistribution program would of necessity be a detailed compilation of land ownership statistics and classification of individual land holdings by physical characteristics and use capabilities. Only then could an intelligent decision be made regarding retention acreage for various types and combinations of land. Holdings in excess of the minimum established acreage would be sold to the government agency responsible for implementation of the land redistribution program.

In countries where there is a concentration of land ownership, it is well known that there is not an established land market. Even when land is placed on the market by landowners, tenants are unable to purchase it because of a lack of capital, inadequate credit facilities, and the fact that the asking price, because

of exorbitant rentals, is higher than a a tenant is able to pay based on the productivity of the land. Thus, when the government purchases land at a price commensurate with its productivity for resale to tenant farmers, the price often represents a considerable capital loss to landlords. It is apparent that the resale price of land must, above all else, be a fair price for the purchaser—that is, reasonable in terms of the productive capacity of the land, on just terms, and at a price that leaves, above the carrying costs of the indebtedness, a return sufficient to provide for land improvement, and improved rural living in terms of monetary and human values. But the landlords may not be content with such compensation as can economically be tendered unless they also stand to profit eventually from the arrangements—if not through the sale price then at least by the possibility of substantial gain from an alternative investment. It is to this problem that attention will be directed, but first it is desirable to mention certain financial matters relative to land redistribution.

The two most common techniques of carrying on a land redistribution program are through revolutionary expropriation of the estates and through legislative action providing for "fair" compensation. The former method is often pursued by the Communists and the latter is espoused by the free nations of the world. The financial aspects of a government-operated land transfer program present a problem of great complexity. It has already been mentioned that in the under-developed countries, where the need for some type of land reform is often most pressing, there exists an acute shortage of liquid capital. To get around this lack of funds, four commonly proposed financial techniques are: (1) token payments for the land expropriated, which is virtually the same as confiscation; (2) the issuance of long-term non-negotiable government bonds; (3) payments in kind rather than in cash; and (4) the simple but ruinous expedient of inflating the economy by printing the needed money.

In any substantial program of compensated land redistribution the inital cost to the government is obviously of considerable magnitude. To put this money into the income stream of a country's economy either through purchase of land by cash—as through printing the money—or by issuance of negotiable bonds, which is substantially the same as paying cash, would be most ininflationary. The effects on the overall economy of a country might well be more disastrous than the immediate ills to be cured. Consequently, attention should be given to non-inflationary methods of financing a land redistribution program.

When the government pays for the land purchase with non-negotiable interest-bearing bonds, redeemable in a series of equal installments based on the number of years required for purchasers to amortize their debts, the inflationary effects are minimized in that payments made by land purchasers are substantially equal to the cost of bond redemption. But this method of financing a land transference program has two critical shortcomings. First, landlords are generally reluctant to exchange their landholdings for long-term paper promises of eventual payment by a non-too-stable or solvent government. And second, simply issuing non-negotiable promissory notes does nothing to meet the vital problems associated with the transfer of wealth in land to alternative types of investment, which is so necessary for underdeveloped countries.

Insofar as is possible, a land redistribution program should be part of a coordi-

nated program of economic development encompassing both agriculture and industry. Its aim should be to raise the standard of living and the well-being of people throughout a country. This implies an increase in purchasing power and subsequent expanded rural markets for manufactured goods. It should also mean alternative employment for the surplus farm population through expansion of local industry. Without a general improvement in the whole economic cycle of primary producers, urban processors, and ultimate consumers, there can be no lasting benefit to agriculture.

It should also be kept in mind that ultimate success for a land redistribution program requires that it be premised on the inherent political and economic realities of an existing situation. In most countries where land tenure reform is urgently needed, political power rests in the hands of a minority land-owning class. Hence, agrarian reform programs that are not acceptable to the politically powerful landlords themselves are likely doomed to parliamentary failure. It is recognized that widespread agrarian unrest within countries has a very persuasive effect on what landlords deem to be within the realm of enlightened self-interest. But, nevertheless, landlords can hardly be expected to give up voluntarily a major part of their property and social position without fairly just treatment, no matter how imminent a revolution which might deprive them of it all.

Even if a popular legislature puts through a program of land redistribution which financially ruined the landlord class—as results in the case of a land revolution—economic reality would hardly be served. Putting aside for a moment the ethics of fair compensation, it should be remembered that in underdeveloped countries, education, entrepreneurial talent and capital are scarce commodities, and that the major repository of these items is the landlord class. Thus, it would seem highly desirable to take advantage of their assets and talents when moving forward in the economic development of underdeveloped countries through changes in basic institutional arrangements.

The major problem confronting the economic planners is how peacefully to bring about a transference of wealth in land to alternative types of investment, and in a manner that will make for general economic improvement. The proposal which follows deals with achieving land redistribution through a coordinated program which has as its primary objective offering a reasonably satisfactory inducement to large landowners to move out of their traditional involvement with a static form of investment and into the more dynamic field of productive industrial investment. Once this desirable transfer of capital has been accomplished the peasant farmer will have an added stake in the land he cultivates and a greater incentive to raise production; surplus agrarian population will more readily be able to move into vitally needed industry; purchasing power and consumer demand will increase; and the economic cycle will be lifted from a state of chronic stagnation to a dynamic and self-developing one. The number of wants that would then take precedence over raising large families should also have a very desirable retarding effect on population growth.

Instead of payment by non-negotiable bonds for land purchased, as has often been proposed, it is here suggested that the former landowners should be reimbursed by government bonds which could on application to a central bank be negotiated for industrial development loans to finance approved investment projects. This proposal combines two

desirable goals—land reform and industrial growth.

For this purpose a special government agency should be designated or established to select and purchase large land holdings at fair compensation for redistribution and sale to tenant farmers. Likewise a central bank should be established for financing land redistribution and industrial development. It would be a government bank with broad powers of planning for and supervising various types of privately-established new industries. It should also facilitate investment in established concerns for their expansion. Through the bank, outside capital might be secured by loans or foreign investments, subject to provisions guarding against foreign exploitation.

One of the main functions of the bank would be to amortize long-term payments by the new class of small farm owners. Payments would be made into a special fund for the purpose of liquidating eventually the government's obligation to the landowners. During this time, the government would be in a position to exercise some control over efficient land use and give direction to a productive and beneficial industrial development pattern through its control of investment funds released to the bondholders. And, through the bank (a planning, loaning and supervising agency) other free governments of the world might well extend technical help as well as financial assistance. It is realized that the success of this plan would depend in large part on the skill and foresight of the government in formulating a well balanced economic development program for the country.

It is necessary that the bank function in such a way as to promote faith in the soundness of its operations. Its success will be measured by its contribution to economic development and ability to secure the participation of country savings and foreign loans. There are, however, certain costs that are necessary for the successful operation of the bank that should be considered as a subsidy and included in general government expenditures. Subsidies will be needed in the extension of credit to farmers, and for necessary technical assistance and supervision of credit. These operational costs should be kept separate or disbursed through a closely associated agency.

The financial outlay incurred by the central bank in granting approved industrial development loans would be met from several sources. First, from whatever liquid funds may be available to the government through taxation, selling of securities, or perhaps "counterpart accounts." (Counterpart funds are local currency receipts for United States aid program goods sold on the domestic market. Their expenditure is regulated by agreement with the United States Government.) As for the remainder of the investment outlay required for local expenditure, e.g., wages and raw materials, domestically produced goods and services, it can be created by the central bank in the same manner that central banks in all countries create new money in response to the legitimate needs of business and industry for productive investment funds. This method is economically orthodox and only moderately inflationary, in that loans made for the purpose of increasing production are actually anti-inflationary in their ultimate effect. That part of the investment funds required for foreign expenditure, e.g., import of equipment and machinery, certain raw materials, and technical advisers, must be obtained from export surpluses, and from credits, loans, and grants extended by foreign governments or international investment banking institutions. Well formulated domestic

investment programs should be in a favorable position to obtain foreign funds for self-liquidating types of productive investment.

Considerable attention should be given to the criteria for establishing approved industrial investment loans. As an initial step a detailed economic resources survey should be made for the country, together with a census of existing industry. A national economic development program should then be drawn up, outlining the types of industry most needed. This is a matter of central importance and, if necessary, specialists could be brought in from abroad to assist in the development planning stages. The information compiled should be circulated and publicized. The central bank must exercise care through its loan approvals in order that a balanced industrial development takes place, without over-expansion in some fields, uneconomic competition with foreign imports, or undue specialization in luxury items. Recommended fields for industrial development would include the extractive industries, primary processing and bulk reduction of raw materials for export, food preserving, and labor intensive light industries such as building materials, (cement, glass brick, plywood), textiles, chemicals and pharmaceuticals, and fertilizers.

As a phase of a broad program for rural improvement, other programs, such as rent reduction and regulation, the enactment and enforcement of legislation making for fair and just landlord-tenant relations, and the establishment of an adequate system of production credit for farmers and farm cooperatives are obviously needed. With these programs, the functions of the central bank should be correlated, both to strengthen the operations of the bank and to make more effective these other complimentary programs.

In summary, it may be said that the aim of the land redistribution program should be to develop a strong class of independent and solvent small farmers, who would supply a broad basis for the strengthening of democratic institutions within a country, and who would furnish an expanding market for domestic manufacturers because of the gradual rise in their purchasing power. The wealth and abilities now centered in land should be directed to making for and meeting the needs of an expanding economy. The difficult aspects of the job are well recognized and there are indeed what might appear to be insurmountable problems of coordination, but the existing world situation demands courageous thinking and cooperative leadership in the solution of such problems. Existing land problems cannot be effectively dealt with by military strength alone, which mainly buys time for change, but demand intensive study and forthright action by the free nations of the world.

Mechanics of the Urban Economic Base: Historical Development of the Base Concept

By RICHARD B. ANDREWS*

There is now a greater general awareness of the need for a more complete understanding of the urban economic base. So many urban problems find their roots in the base and are influenced by the ways in which the base acts that "solutions" which disregard the base as an influencing factor or give it only passing notice are likely to be ineffective (urban redevelopment is here a case in point). This situation throws a very heavy burden on base theory which is still rather thinly developed and has not been thought through in some of its more fundamental as well as detailed aspects. It is for this reason that the author proposes to present a series of articles which aim at a comprehensive description, analysis, and criticism of the mechanics of the urban economic base as presently conceived. The word "mechanics" here carries the connotation of "working details" with special emphasis on the dynamic aspects.

In re-examining base theory with the objective of finding gaps and inadequacies it is appropriate to begin with a review of the historical evolution of the concept. Proceeding in a logical sequence of examination and testing the next article discusses the problem of terminology as applied to the base and the confusions which have developed here. Clearly, adequate and precise terminology is an essential research tool. From here the investigation will move to the question of classification of urban base types showing the inadequacy of present practices and the importance to planning applications of a more meaningful approach. Technical problems of base identification and measurement, delimitation of the economic or base community, and the like are the focus of a subsequent discussion. On this foundation is erected the main critical structure which concerns itself with the dynamics of base theory, an examination of the influence of the base upon the community and the community on the base over time and under varying circumstances.

IN the language of the urban land economist and city planner the term "economic base" has within recent years become a familiar one. There is a fairly general concensus that the economic base refers to those activities of an urban community which export goods and services to points outside the economic confines of the community or which market their goods and services to persons who come from outside the community's economic boundaries. From a trade-flow viewpoint these base enterprises through their export function earn a dollar inflow for the community from the surrounding region, the nation at large, and even from other nations. In yet another sense the base activities can be considered the wage earners of the community family. Without them, or if they decline in earning power, the economic health of the community suffers accordingly.

That economic section of the community which the base directly supports is often referred to as "service activity." Service activities include enterprises whose principal function is that of providing for the needs of persons within the community's economic limits. They are also distinguished from the base in the fact that they are, principally, importers or, if they do not import, do not export their finished goods or services. In a limited sense they can be considered the spenders of the community wages earned by the base activities. Yet they are clearly necessary to the successful operation of the base in that they care for most of the service needs of the base itself and of the base employees. The dependency of service activity upon base activity is evident in the fact that employment and and profitability in service activities is highly sensitive to changes in the base, rising and falling with it.

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As with nations, one economic objective of the community seems to be either to keep its trade in balance or to obtain a favorable export balance. If a community's trade balance becomes negative for a considerable period or if the exporting functions decline in activity, reallocations of the local economy as between base and service employment ratios are sure to take place and an eventual downward adjustment in total community population is almost certain to result.

Since this base-service-community relationship is, in an economic sense, a relatively obvious one there is no particular point in trying to trace and list its first formal recordings. It is however, of more importance to trace the historical evolution of the thinking and conditions which have tended to formalize and systematize thought around this concept within relatively recent years. It can fairly be said that the most significant stages in the evolution of the idea of the economic base as a theoretical concept have taken place within the past thirty years concurrent with the gradually increasing impetus of development of the city planning movement in this country. Up until the Twenties the city planning movement in the United States was not greatly concerned with economics. However, the late Twenties and, of course, the Thirties witnessed a heavy use of this discipline in the planning process as urbanization increased and the complex, delicate balances of an interdependent economy became apparent. Nor is it by any means coincidental that the development of urban land economics as an independent field and the rise of economics as a tool in city planning went *pari passu* through this period.

The modern history of the development of the economic base concept and the evolution of its techniques of application can be rather briefly told.

One of the most complete early statements of the concept appeared in connection with the planning efforts of New York City in its *Regional Survey of New York and its Environs* published in 1928, and in particular in the monograph put out by Robert Haig with Roswell C. McCrea as his consultant. In the Survey the statement was made that:

". . . the multiplicity of . . . productive occupations may roughly be divided into those which can be called *primary* . . . manufacturing goods for general use (i.e., not confined to use within the community itself) and those occupations which may be called, *auxiliary*, such as are devoted directly or indirectly to the service and convenience of the people engaged in the primary occupations."[1]

However, the novelty of the idea and the, at that time, slight degree of understanding of its significance can be noted in another passage which states:

"The project of an economic and industrial survey was ambitious in scope and novel in character. No general agreement existed as to the facts which were essential and pertinent for an analysis of the operation of economic forces under conditions of collective action such as those contemplated by a regional plan . . . . It was necessary to break new ground."[2]

Frederick Nussbaum, an historian, writing five years after the publication of the Regional Survey made a simplified yet well expressed statement describing the base and its service complement when he said:

"The principal, constituent elements of the town were those who are able by power or wealth to command a means of subsistence from elsewhere, a king who can tax, a landlord to whom dues are paid, a merchant who

[1] Robert M. Haig, *Major Economic Factors in Metropolitan Growth and Arrangement;* Vol. I of *Regional Survey of New York and Environs* (Extract of a letter from Mr. Frederick Law Olmsted to Mr. John M. Glenn dated February 21, 1921) (New York: 1928), p. 43.

[2] *Ibid.*, p. 114.

makes profits outside the town, a student who is supported by his parents. These are 'town builders'. After them come what we call the 'town fillers', those who serve the needs of the 'town builders': the shoemaker who makes the king's shoes, the jeweler who depends on the purchases of the merchant's wife, the landlady from whom the student rents his room".[3]

The more pragamatic beginnings made by the *Regional Survey* in 1928 were extended to a higher plane of development in the housing market studies made under the Federal Housing Administration in connection with the development and execution of its mortgage risk rating system in the late Thirties. Under the guidance of Ernest M. Fisher, the Division of Economics and Statistics of the FHA employed the talents of economist Homer Hoyt. In the course of his work with the Division, Mr. Hoyt devised a quick survey technique that would reveal the salient facts and relationships of the economy of a community which could, in turn, be converted into an indicator of local housing market demand.[4] It was in 1936 that Hoyt developed the essential outlines of the economic base idea as we now know it. At that time, on the basis of admittedly limited experience and data, he conceived of the basic and service elements of cities as having an employment ratio of 1:1. As Hoyt himself was soon to point out, this ratio actually varied from city to city.

As a result of his work with the FHA accompanied by independent research, Hoyt's thinking on the nature of urban structure and the economic base quickly matured. Consequently, in 1939 Hoyt, in cooperation with Arthur M. Weimer of the University of Indiana, brought out the text *Principles of Urban Real Estate.*[5] Here for the first time in the literature appeared a complete statement of the theory of the economic base. This statement included much material that was new outside of technical reports. For example, it introduced in formal fashion the idea of a mathematical relation between basic employment and service employment. It suggested, though it did not specifically state at that time, a ratio relationship between basic employment and total population, Identification and weighting of various elements of the base was also presented as a mathematical analysis technique. Hoyt considered the economic base idea to be a tool that might be employed in analyzing the economic background of cities with the objective of forecasting the future of the entire city. He applied a four-stage technique in this analytical process which assumed the following outline:

(1) Calculation of total basic employment in the community and, particularly, the amount of basic employment in *each* basic activity. This last was in itself a new and more precise approach inasmuch as, up to that time, cities had been all too loosely characterized as "factory towns," "college towns," "commercial centers," and the like.

(2) Estimation of the proportion of basic employment to service employment. As mentioned above Hoyt assumed this ratio to be 1.1 but later determined that actual calculations and estimates had to be made for individual cities.

(3) Estimation of the future trend in each segment of the base as indicated by analysis of the demand for its product or service, locational factors, productive efficiency, etc.

(4) Calculation of total employment and total future population on the basis of future trends in basic employment.

The calculation of total future population was implicit in Hoyt's first formal

[3] F. L. Nussbaum, *A History of the Economic Institutions of Modern Europe* (New York: F. S. Crofts & Company, 1933), p. 36.

[4] Federal Housing Administration, *Basic Data on Northern New Jersey Housing Market*, July 1937; *Hartford, Connecticut Housing Market Analyssi*, March 1938; *Akron, Ohio Housing Market Anylsis*, November 1938; *Indianapolis, Indiana Housing Market Analysis*, August 1939; and Form No. 2096 (Rev. Dec. 15, 1936) *Economic Background Rating Form.*

[5] Arthur M. Weimer and Homer Hoyt, *Principles of Urban Real Estate*, (New York: The Ronald Press Company, 1939).

statement but became explicit in later statements and in applications of the four-stage technique such as those made for the Chicago Plan Commission and the New York Regional Plan Association in 1944.

Just prior to the publication of Weimer and Hoyt's text there appeared two studies which are worthy of note in connection with the evolution of the economic base concept. The first of these, "Oskaloosa (Iowa) versus The United States," was a lengthy report based on a survey made by staff members of *Fortune* Magazine.[6] It adopted the balance-of-trade approach in analyzing a small Iowa county seat. In the process of tracing the dollar volumes of imports and exports it performed an admirable job in distinguishing the community's "growth" and "service" factors. In this connection it also attempted, with some success, the measuring of rents, profits, and other forms of unearned income as a part of the base and of the import-export flow. This report was definitely a pioneering effort in the sense that it applied foreign trade principles to the analysis of an urban economy and in the fact that it threw much light on the nature of the export or basic phase of that type of economy. The practicability of the technique as a general analytical approach, particularly in large urban areas, was and still is open to question.

Also appearing in 1938 was Glenn McLaughlin's *Growth of American Manufacturing Areas.*[7] Whereas McLaughlin did not use terminology that had up to that time been associated with discussions of the economic base he did emphasize relationships within urban economies which were vital to an understanding of the base. For example, he was greatly concerned with the association between changes in metropolitan-area, industrial activity and expansion or contraction in local area population. He also invested much analytical effort in an examination of centrifugal and centripetal forces affecting plant location within an area and on the factors which caused the composition of local economies to change in character.

Following the relatively fertile period of thinking on the concept of the economic base which characterized the latter part of the Thirties there began a period of review, evaluation, and testing in which we still find ourselves. The historical development of the "base" idea as it entered the Forties followed a trend which is, undoubtedly, characteristic of most new lines of thinking. There appeared many, though far from a flood of planning reports and articles which refined the original base concept in its specific aspects and added significantly to the techniques by which the idea might be explored and applied.

It was also true that, after a lapse of more than a decade, local planning agencies began to follow the lead of the Regional Plan Survey and the Federal Housing Administration in applying the base concept directly to the planning process.[8]

The concluding remarks of this survey will not pretend to present a comprehensive bibliography of the studies which relate to thinking on economic base theory and practice but rather will touch upon those highlights from 1940 to 1952 that seem significant.

It should, of course, be mentioned that the FHA and later the National Housing Agency continued into the Forties the previously-mentioned housing market an-

[6] "Oskaloosa versus the United States," *Fortune*, April 1938.

[7] Glenn E. McLaughlin, *Growth of American Manufacturing Areas* (University of Pittsburgh, 1938).

[8] The Federal Reserve Banks also adopted the technique as a part of their economic analysis and forecasting system.

alyses which employed economic base studies as an integral part of their presentation.

An example of the trend toward refinement can be found in Hoyt's more precise presentation of the process of making an economic rating of cities with emphasis on the prospects of future employment.[9] A further refinement of this same variety was introduced by Hoyt into the Regional Plan Association's review study of the economy of the New York Area.[10] In this study a technique was introduced by which it was possible to identify which portion of an industry in the community could be considered basic and which service by relating local employment and population proportions to national employment and population data. This report presented many other refinements of an equally important nature. Appearing in the same year (1944), a study of Detroit's economic base made by its plan commission was further proof of the skill with which the idea of the base was being handled and the practicability of applying it to local planning situations.[11]

Further signs of the times appeared in the planning journals one of whose editors commented: "Analysis of the urban economic base is increasingly attracting attention. Actually we are in the beginning stages of development of needed technique . . ."[12]

Despite the strides that had been taken in the organization of thinking relative to the concept of the urban base and the mechanics of the urban economy generally, one planner was prompted to state that:

> "One of the most important but neglected elements of the economy of a community is the functional organization and inter-relationships of the various activities and industries within the area. Exploration of economic linkages and interdependence among the commodity producing industries of the area, among trade and service enterprises and between commodity production, distribution and services would doubtless show many gaps waiting to be filled."[13]

During 1946 much constructive thinking was coming from the Cincinnati City Planning Commission, and, specifically, from the pen of Victor Roterus. One specialized contribution to this "school" was a correlation technique, a variation of Hoyt's 1944 technique, whereby local employment data are correlated and projected in relation to national employment. These estimates are then translated into local labor force and finally population.[14] The Cincinnati Commission report refined the base identification technique of the New York (1944) report and among a series of general observations pointed out that urban growth (base) employment was not the only impetus to growth of an urban area since "growth is also induced through increasing real incomes."[15]

Through the six-year period 1947-1952, several other studies emerged which tended to document theory, extend tech-

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[9] Homer Hoyt, "Economic Background of Cities," *Journal of Land & Public Utility Economics*, May 1941, pp. 188-195. (This was the first formal statement of base theory to appear in a technical journal.)

[10] The Regional Plan Association, Incorporated, *The Economic Status of the New York Metropolitan Region in 1944* (New York: 1944).

[11] Detroit City Plan Commission, *Economic Base of Detroit* (Detroit, Michigan: 1944).

[12] Editor's note, *Journal of the American Institute of Planners*, Summer 1945, p. 10.

[13] Van Beuren Stanberry, "Planning for the City Secure," *Journal of American Insitutute of Planners*, Summer 1945, p.10.

[14] Victor Roterus, "The Economic Background for Local Planning," *Planning 1946*, Proceedings of the Annual Meeting of the American Society of Planning Officials in New York' May 6-8, 1946, Chicago, 1946, p. 86.

[15] Cincinnati City Planning Commission, *Economy of the Area* (Cincinnati, Ohio: 1946), p. 23.

nique, and expand application of the concept.[16]

Two particularly interesting applications of base theory were made by Hoyt during this period. One of these centered around a survey made in the Brockton Massachusetts area.[17] In his drafting of this report Hoyt introduced a picturization with supporting tables, of the money flow of the Brockton Study Area. The breakdowns and relationships of income and expenditures were comparable to those made in the Oskaloosa Study of 1938 referred to earlier. Hoyt, however, introduced color indicators showing the effect on total income and expenditures that might be anticipated from a let-alone policy as against a policy of planned stimulation of certain portions of the base.

In another survey which was focused on Arlington County, Virginia, Hoyt again employed base technique as a planning tool.[18] This study is notable in the fact that it presents a highly comprehensive and detailed application of the economic base concept and technique to the problem of estimating the amount of land required for each type of land use on the basis of the calculated need for expansion of the industrial space, the requirements for new homes and apartments, etc.

A very recent contribution in the field of technique has been made by Professor John Alexander.[19] He has devised a system of base and service activity identification which works through a questionnaire issued to individual enterprises of the community. Their reported proportions of export activity are then applied (particularly in the case of retail establishments) to their total employment figure in order that it can be broken down into its base and service components.

The revised edition of Weimer and Hoyt's text published in 1948 pretty well caught together the loose ends of thinking on the base of the previous decade and gave the field a consolidated point from which to continue.[20] However, it was Ratcliff's text of the following year which performed the long-delayed task of emphasizing in greater detail the strategic position of the economic base as the "coloring" factor of an entire urban economy in all its aspects, economic, social, and institutional.[21]

That this sphere of land economics was gaining increasing recognition as one demanding not only close technical attention but also deep consideration from the standpoint of theory as well became apparent with the appearance of two papers in the annual proceedings of the American Economic Associaion.[22] Both

[16] W. D. Knight, *Subsidization of Industry in Forty Selected Cities in Wisconsin, 1930-1946*, Vol. I, No. 2, Wisconsin Commerce Studies. Bureau of Business Research and Service, School of Commerce, University of Wisconsin, Madison 1947; Homer Hoyt, "Economic and Housing Survey of the Orlando, Florida, Metropolitan Region," *Journal of Land & Public Utility Economics*, May 1947; W. E. Hoadley, Jr. and C. G. Wright, *Employment, Production, and Income in the Chicago Industrial Area* (Research Department, Federal Reserve Bank of Chicago, 1948); Edgar M. Hoover, *The Location of Economic Activity* (New York: McGraw-Hill Book Company, 1948); Federal Reserve Bank, Kansas City, Missouri, *The Economy of Albuquerque*, New Mexico, 1949; Chicago Plan Commission, *Chicago Industrial Development, Recent Trends* (Industrial Study 2, April 1952).

[17] Homer Hoyt, *A Report on the Economic Base of the Brocton, Massachusetts Area* (Brockton, Massachusetts: January 1949).

[18] Homer Hoyt Associates, *Economic Survey of the Land Uses of Arlington County, Virginia* (September 1951).

[19] John W. Alexander, *The Economic Life of Oskhosh, Part I* (Madison: University of Wisconsin, University Extension Division, 1952).

[20] Hoyt changed the usage of the term "weighting" in this text. In the 1939 edition weighting of the elements of the base was accomplished by measuring the proportion of total employment in the community claimed by the base element then doubling this proportion to account for the service employment total directly tied to that portion of the base. However, in the 1948 edition, in line with procedures developed in the New York study of 1944, he refers to weighting as the process of adjusting the numerical employment order of a group of base enterprises by the percentage of total payrolls for which each one accounts.

[21] Richard U. Ratcliff, *Urban Land Economics*, (New York: McGraw-Hill Book Company, Inc., 1949).

[22] Rutledge Vining, "The Region as an Economic Entity and Certain Variations to be Observed in the Study of Systems of Regions," *American Economic Review*, Papers and Proceedings of the American Economic Association, May 1949, pp. 89-104; and Phillip Neff, "Interregional Cyclical Differentials: Causes, Measurements, and Significance," pp. 105-119.

papers tended to emphasize the broader territorial aspects of the local economic base and its position in an economic system. In short, these studies contributed long-needed perspective to a concept which had been in danger of becoming entirely too narrow in its scope and which, in all fairness, has been said to be "artificial" in its tendency to cut urban economies from "context," so to speak, for the purpose of test-tube analysis.

In conclusion, it seems fitting to point out that, in the case of urban base theory, we have operated far too long on a set of ideas which appear valid but which, despite substantial conceptual omissions and difficulties of application, seem to be accepted all too blithely as gospel by many researchers and active city planners. While the tendency of research effort in the past fifteen years has been in the direction of perfecting technique, obtaining more precise statistical data on base elements, and applying theory (and this is as it should be), it seems to this author that concurrent with this activity there must also take place more fundamental thinking on and questioning of the reality and utility of base theory as presently conceived.

In the field of technique itself there exist serious blind spots. For example, there does not seem to be any accepted technique of delimiting the economic community. Yet this is crucial if we are going to talk in terms of exports from and service within a community. This leads in turn to the difficulties of base identification and measurement. Are we to talk about the base in terms of numbers of employees, value of product, volume of wages paid, or some combination of these? What are the implications of using some of these measurements singly as is done at present? Is our classification of basic activities clear and meaningful? This author thinks that it is not.

Aside from technique there arises a more important question concerning the dynamics of base and service components in a community. What exactly are the changes to be expected from employment or wage total declines in the base? Do they actually have the direct proportional effects on service employment, total community employment and population that we think they have? This is a particularly dark area of the jungle. Again in the field of dynamics what do we know of the linking of base activities aside from some of the more obvious linkages in the base fields of trade and manufacturing? The answer is, relatively little. And yet if base theory is to become an even more meaningful concept-tool for the city planner the land economist must make a more forthright effort to clear away the underbrush that hides the true features of this idea. An attempt will be made in future articles to make a preliminary examination of some of these perplexing questions.

The Natural Gas Industry: An Economic Appraisal of Public Policy

By DUDLEY F. PEGRUM*

I.

THE natural gas industry poses a number of unique problems of public policy as the result of two distinctive characteristics. In the first place, it is an industry which in some of its aspects, such as transmission and distribution, conforms to the traditional public utility pattern, while in others, such as the production and gathering operations, it does not. Second, natural gas is an exhaustible natural resource which cannot be replenished. It's life in terms of all the possible demands for it may be very limited. Conservation and end use have consequently become highly significant and controversial public issues.

Attention in this paper is centered on the Natural Gas Act and its administration because it is in this connection that the principal issues of public policy have been brought to focus. The analysis is designed to set forth some major economic considerations, relating to the production, distribution and conservation of natural gas, which form the heart of the problem and around which the other details of administration must cluster.

II.

Interstate transportation of natural gas dates back to the last ten years of the nineteenth century but did not become of any real significance until about 1926 when the modern period of long distance high-pressure transmission began.[1] By 1934, 23 percent of the total output of natural gas in the United States moved in interstate commerce.[2] Meanwhile, severe limitations on the powers of the various states to regulate this traffic had been imposed by the Supreme Court of the United States. The need for regulating the interstate business of natural gas utilities finally attracted the attention of Congress. The result was the Natural Gas Act of 1938.

The purpose of this legislation was to provide for federal regulation of the natural gas industry in the area that was beyond state control. The states were unable to deal with the problem at either the producing or at the receiving ends in so far as the activities were clearly a matter of interstate commerce. Where they did not fall exclusively into this category, or where they were exclusively of state concern (if one can say with assurance that any of the activities fell indisputably within this field), the dividing line between the authority of the states on the one hand and the federal government on the other could be drawn by Congress by appropriate legislation. This is presumably what Congress proceeded to do, especially in the highly controversial section 1(b) of the Act.

The Natural Gas Act declared that the business of transporting and selling natural gas for ultimate distribution to the public was affected with a public interest. Section 1(b) of the Act provided that:

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[1] Wilson, Eutsler and Herring, *Public Utility Industries* (New York: McGraw-Hill Book Co., 1936), p. 71.

[2] C. E. Troxel, "Regulation of Interestate Movements of Natural Gas," *Journal of Land & Public Utility Economics*, February 1937, p. 21.

". . . this act shall apply to the transportation of natural gas in interstate commerce, to the sale of natural gas in interstate commerce, for resale for ultimate public consumption, for domestic, commercial, industrial or any other use, and to natural-gas companies engaged in such transportation or sale, but shall not apply to any other transportation or sale of natural gas or to the local distribution of natural gas or to the facilities used for such distribution or to the production or gathering of natural gas."

A natural gas company was defined as "a person engaged in the transportation of natural gas in interstate commerce, or the sale in interstate commerce of such gas for resale."

The legislation spelled out the powers and responsibilities of the Federal Power Commission in the familiar pattern for public utility regulation. There were some omissions, however, such as control of industrial rates on sales made directly by the natural gas companies, issuance of securities, and consolidations. As a consequence, the commission lacks certain significant controls that seem to be desirable if the industry is to be regulated effectively as a public utility.

The administration of the Natural Gas Act has focussed attention on two major issues, both of which have many ramifications. The first of these, in order of appearance, was the perennial problem of the basis on which a fair return should be calculated.[3] The bearing of this on the present discussion is that it involved not only property used in the transmission of of natural gas, but more significantly the natural gas reserves owned by the natural gas companies from which they drew at least part of their supply. The second issue pertained to the scope of the Commission's powers as they related to production and gathering of natural gas; and rate structures and distribution.

In the Hope case the Federal Power Commission included the natural gas reserves owned by the company in the rate base and used prudent investment as the basis of valuation. Mr. Justice Jackson, in his dissenting opinion, took the position that the rate-base method was valid for the transmission of natural gas, but was inapplicable to its production because of the totally different character of the latter. He argued that "gas is tangible, possessible and does have a market and a price in the field." The Commission should therefore be left to fix the price of gas in the field as one would fix maximum prices of oil or milk or coal or any other commodity. Thus, Justice Jackson contended that natural gas companies took on a dual character. So far as transmission and distribution were concerned they fell into the public utility category and could be regulated in the conventional way. In their production of natural gas, however, they did not fall into this pattern and should not be treated as so doing by commissions and courts.

The question of scope of the powers of the Commission under section 1 (b) of the Natural Gas Act had not been raised in the Hope case. This issue burst into full bloom, however, in *Colorado Interstate Gas Co.* v. *Federal Power Commission.*[4] The majority of the Court held that section 1(b) of the Natural Gas Act "does not preclude the Commission from reflecting the production and gathering facilities of a natural gas company in the rate base and determining the expenses incident thereto for the purposes of determining the reasonableness of rates subject to its jurisdiction." Mr. Justice Jackson concurred in the opinion because he felt that he was bound by the ruling in the Hope case.

Chief Justice Stone, supported by Justices Roberts, Reed and Frankfurter,

[3] See: *Federal Power Commission* vs. *Natural Gas Pipe Line Co.*, 315 U. S. 575 (1942) and *Federal Power Commission* vs. *Hope Natural Gas. Co.*, 320 U. S. 591 —(1944). The present paper is not concerned with the issues involved in valuation *per se*.

[4] 324 U. S. 581 (1945).

dissented vigorously on the ground that the Commission "subjected petitioner's production and gathering property to the same regulation as that which the statute imposes upon petitioner's property used and useful in the interstate transportation and sale of gas for resale. This, we think, the Natural Gas Act in plain terms prohibits." The dissent conceded, as did Mr. Justice Jackson, that the Commission needed to investigate the production and gathering of property in order to ascertain the fair unregulated value of the natural gas. It held, however, that "this does not mean that in fixing rates for a regulated business which derives its distributed product from an unregulated business that the property of the latter is not to be segregated from the regulated property, or that there can rightly be applied to it standards of valuation and rate of return which are applicable only to a regulated business." Here the minority position seems to be essentially the same as that of Mr. Justice Jackson in the Hope case. If the dissenting justices in the two cases had been able to find a common ground for their views, the thorny problem of production and gathering would have been given a legal solution at least. Had that happened, the Commission might have developed a policy which would have prevented some of the bitter controversy which developed among its members.

The cases, thus far discussed, dealt with the scope of the Natural Gas Act as it applied to the property of natural gas companies. At the same time the dividing line between state and federal powers, as it was drawn in the Act, came up for adjudication. Uncertainty on this score was aggravated by the controversy over control of production and gathering. Failure to settle this issue has left the dividing line between federal and state authority a matter of considerable uncertainty. This is illustrated in *Interstate Natural Gas Co.* v. *Federal Power Commission.*[5] In this case, the court stated:

> ". . . where sales, though technically consummated in interstate commerce, are made during the course of production and gathering and are so closely connected with the local incidents of that process as to render rate regulation by the Federal Power Commission inconsistent or a substantial interference with the exercise by the State of its regulatory functions, the jurisdictions of the Federal Power Commission does not attach. But such conflict must be clearly shown."

It was this position on the part of the court that provided one of the principal arguments of Commissioner Buchanan in his vigorous dissent from the majority opinion in the *Phillips Petroleum Investigation.*[6] Even the majority of the Commission had some difficulty in reconciling its decision in the Phillips case with the Supreme Court's position in the Interstate case. This is evidenced by the statement: "Taking all of this together, we cannot view the *Interstate* decision, *despite the language used*, (emphasis supplied) as holding that the rate jurisdiction of this Commission attaches to all interstate sales made in the course of production and gathering, except where the indicated conflict is clearly shown." Commissioner Draper, in his concurring opinion, disagreed with the majority's interpretation of the law as set forth by the Supreme Court.

The line of demarcation between state and federal powers is almost as indefinite at the distribution end of the natural gas business as it is at the production and gathering. The failure of Congress to designate the extent of the powers of the Federal Power Commission and the exclusion, from regulation by the Com-

[5] 331 U. S. 682 (1947).

[6] *In the Matter of Phillips Petroleum Co.*, 90 P.U.R. (N.S.) 325 (1951).

mission, of direct sales of industrial power by the natural gas companies are sources of current confusion and potential difficulties.

In *Federal Power Commission* v. *East Ohio Gas Co.*,[7] the gas company contended that it was not subject to the jurisdiction of the Commission because the company received all of its gas from other companies and transported gas itself only within the boundaries of Ohio. The majority of the Court held that the gas was in interstate commerce and that, because it moved in the high-pressure lines of the company, it remained in interstate commerce. Mr. Justice Jackson dissented vigorously on the ground that the Commission had exceeded the authority conferred upon it by the Natural Gas Act.

"Whatever we may think would be wise policy in this field, the Act which Congress passed places limitations upon the Power Commission, which may chafe but which neither we nor the Commission are free to override. If the Commission had foreshadowed its present course, I do not suppose the Act would have passed, for it certainly would have evoked resistance of the state regulatory agencies instead of their support."

In *Panhandle Eastern Co.* v. *Public Service Commission of Indiana*,[8] the Supreme Court upheld the power of a state to regulate the industrial rates of a natural gas company by stating that "direct sales for consumptive use of whatever sort were excluded" from the jurisdiction of the Federal Power Commission. Again, in *Panhandle Eastern Pipe Line Co.* v. *Mich. Public Service Commission*,[9] the majority of the Court upheld the Michigan Commission in its demand that Panhandle Eastern secure a certificate of public convenience and necessity from the state authority before it constructed a tapline to serve the Ford Motor Company directly in Detroit.

Mr. Justice Frankfurter dissented on the ground that Michigan was exercising control that was within the effective authority of the Federal Power Commission. "It is not for the States in pursuit of local state policies, to decide what products from without may cross state boundaries or admit them on condition that they satisfy local economic policy."

The exclusion of direct sales of industrial power by the natural gas companies from the authority of the Federal Power Commission precludes effective regulation of the rates for these sales because the states have no reasonable standards by which to gauge such control as they may impose. At the same time the Federal Power Commission is faced with regulating part of the business of the transmission lines while the other part is free from such control. The results are unsatisfactory to all concerned.[10]

The controversies created by the administration of the Natural Gas Act and the problems which were thereby disclosed aroused both the Commission and Congress to the necessity of a careful investigation of the whole subject. The results were reported to Congress by the Federal Power Commission in two reports, entitled *Natural Gas Investigation* (Docket No. G-580), submitted in 1948.

Congress also took cognizance of the situation by holding extensive hearings and by considering a number of bills. This action culminated in the Kerr Bill, which finally received the approval of both houses in March, 1950.[11] This

[7] 338 U. S. 464 (1950).
[8] 332 U. S. 507 (1947).
[9] 341 U. S. 329 (1951).

[10] See: dissenting opinion of Justice Jackson in the Hope case *op. cit.*, also, *Colorado Interstate Gas Co.* vs. *Federal Power Commission*, 324 U. S. 581 (1945); *Colorado-Wyoming Gas Co.* vs. *Federal Power Commission*, 324 U. S. 626 (1945); *Panhandle Eastern Pipe Line Co.*, vs. *Federal Power Commission*, 324 U. S. 635 (1945).

[11] The Kerr Bill was S. 1498. The bill that was finally adopted was HR 1758 which in text, however, was a duplicate of S. 1498.

legislation amended the Natural Gas Act by exempting arm's-length sales of natural gas to natural gas companies. It also instructed the Commission to ascertain whether lack of competition retarded the flow of gas in interstate commerce or unduly affected price. If it found this to be so, it was to report the matter to Congress. President Truman vetoed the bill using in abbreviated form the arguments of Commissioners Olds and Draper for his action.[12]

Meanwhile, the Commission, on August 4, 1947, issued Order Number 139 publicly announcing by rule that the provisions of the Natural Gas Act would not apply to the production or gathering of natural gas in arm's-length sales by independent producers and gatherers. When the President vetoed the Kerr Bill the Commission rescinded order number 139 by order number 154 which stated that the Commission would undertake appropriate investigations where the sales of individual producers or gatherers had a material effect on interstate commerce. In accordance with this order, the Commission, in August 1951, rendered its opinion in the *Phillips Petroleum Investigation*[13] which had been instituted in 1948.

The majority opinion held that Phillips Petroleum was engaged in the production and gathering of natural gas which it sold in interstate commerce, but that it was not a natural gas company within the meaning of the law. Commissioner Draper concurred on the ground that "inconsistency or substantial interference with state regulation would result from regulation of Phillips' sales by [the] Commission." He took issue, however, with the majority position that Phillips was not a natural gas company within the law. Commissioner Buchanan wrote a vigorous dissenting opinion, his basic position being the same as that of Commissioner Olds and Draper in their report on the Natural Gas Investigation.

The record of vacillation, litigation and confusion that has been very sketchily portrayed in this presentation may be attributed to four main reasons. First of all, the Federal Power Commission has had no consistent policy. It has been vacillating and divided. Instead of proceeding gradually and circumspectly in developing and applying the law in a new and difficult area of regulation, some of its members have been able to push the scope of the Natural Gas Act almost to its extreme limits in their zeal to expand the authority of the federal government over this segment of private industry.

Second, the Supreme Court has failed to interpret the law in any definitive way. It has laid down few clear-cut rules; it has been well-nigh hopelessly divided; and it has avoided its time-honored responsibility of establishing reasonably ascertainable bounds within which an administrative agency must operate. A reading of its decisions has been of little help to the Commission.

Thirdly, Congress has failed to clarify the issues by appropriate legislation. The only positive action in this direction was the Kerr Bill and it dealt with only one significant matter.

Fourth, much of the confusion and failure to act decisively arises from the newness and the difficulty of the problems themselves. There are few easy answers to these in an industry that runs the gamut from competitive enterprise to natural monopoly, almost completely interlaces federal and state authority and, for good measure, throws in a critical problem of conservation.

If public policy in natural gas is to be developed with any consistency and

[12] *Congressional Record*, Vol. 96, No. 76, p. 5368, April 15, 1950.

[13] 90 P.U.R. (N.S.) 325 (1951). This case is now on appeal in the U. S. Circuit Court of Appeals for the District of Columbia by the cities of Detroit, Milwaukee and Kansas City, Missouri.

framed in a setting of reasonable legal certainty, Congress must give expression to such policy by appropriate amendatory legislation. It is difficult to see how any other remedy is now available. The legislation, if it is to be successful, must give recognition to the implications of the focal points of the controversy to date, to which attention is now turned.

III.

The problem of natural gas as it relates to production and gathering arises from the fact that the transmission lines own the commodity which they offer for sale. The cost of this commodity consists of two principal items, namely: the cost of the gas itself; and the costs of transmission. Regulation of the price at which the gas is sold must be based on a determination of the amount which is to be allowed for the cost of the gas and the amount which is to be allowed for transmission.

The basis of successful public utility regulation lies in the technological conditions which give control of the source of supply of the service rendered so that the consumer has no readily avoidable alternative choice. The area to be served can be geographically delimited and, because the customers cannot readily shift from one supplier to another, prices can be set for each supplier with little regard for those charged by others. Similarly, the fair profit to each firm can be determined independently of that permitted to others.

The investment necessary to create a given productive capacity can be ascertained with considerable precision and can be supervised with comparative ease. Moreover, it can be successully sanctioned in advance. There is, as a consequence, a reasonably objective basis upon which legitimate investment costs can be approved, upon which capital can be raised, and upon which necessary earnings can be calculated. Direct competition does not intrude to upset these calculations.

When the economic characteristics of public utilities are lacking, regulation on a public utility basis cannot be successfully applied. The difficulties encountered in the field of transportation where competition has become such an important factor is evidence of this fact.[14] Firms cannot be controlled in isolation and the fair return concept is inapplicable. The questions here to be considered are the category into which the production and gathering of natural gas falls, and whether the ownership of natural gas reserves by transmission companies alters the situation.

Natural gas is produced under varying conditions. For the most part the discovery of gas is the result of the search for oil.[15] Approximately one-third of the present natural gas output is derived from oil wells and two-thirds from gas wells.[16] Of this total production, 20% goes to field use, 20% for residential use, 50% for industrial use, and 5% for commercial, the remainder to odds and ends and losses.[17] About 40% of the total production goes into interstate transmission, 75% of this coming from Texas, Oklahoma and Louisiana.[18] The natural gas companies produce something less than 20% of the marketed production in this country, with the 15 major pipeline companies producing only about 18% of their requirements in 1951.[19] Senator Paul Douglas stated that the production

[14] See D. F. Pegrum, "Economic Basis of Public Policy in Motor Transport," *Land Economis*, August 1952, pp. 244-263.

[15] See: The President's Materials Policy Commission, *Resources for Freedom* (Wash., D. C., Government Printing Office, 1952). Vol .III, C. 2.

[16] Nelson Lee Smith, *Question Marks about Natural Gas*, (mimeo) speech before American Bar Association, San Francisco, 1952, p. 3. See also *Resources for Freedom*, *op. cit.*, p. 17.

[17] *Resources for Freedom*, *op. cit.*, p. 18. See also *Natural Gas Investigation* (*Docket 580*), p. 16 and p. 362 for figures approximating these in 1946.

[18] See Nelson Lee Smith, *op. cit.*, p. 5; also *Resources for Freedom*, *op. cit.*, p. 18.

[19] Nelson Lee Smith, *op. cit.*, p. 21.

of 86% of the gas entering into interstate pipelines would be exempt from regulation by the Federal Power Commission if the Kerr Bill became law.[20]

If all the gas which is transported and marketed by the natural gas companies were produced independently, the price paid for the gas could be accepted as the legitimate amount to be allowed for it in determining the ultimate sale price. Where the gas is not purchased but is produced by a natural gas company, or its affiliate, there is no immediate transaction to use for measuring the cost. Recourse to the public utility method of determining it assumes that the commodity should not be valued at any more than it costs to produce it, and that it cannot be disposed of in any other way than by use by the natural gas company, even though there may be a better market for it. If this approach is to be used, the price allowed for the gas will have to be based on costs of production accepted by the public authority as valid, and the utilization of the reserves will have to be in accordance with the sanction of the public agency. This procedure leads to some interesting anomalies.

Productive capacity and investment bear little relation to each other a great deal of the time in various gas producing properties. A small investment may turn up fabulous results in one field and insignificant ones in another. In the first instance the gas may cost literally nothing, while in the other it may be exorbitant. Exploration and discovery are so erratic that this is bound to happen. It does not make gas more valuable in one field than in another, however. There is nothing in economic logic which says that price must always cover costs any more than that price must never be more than costs. Whether expenditures made for the exploration of natural gas are warranted depends upon the results obtained and these cannot be predicted in advance with any reasonable certainty. If the production is to be regulated on a public utility basis, the costs of exploration or acquisition to be allowed in the price must be ascertained and sanctioned. The consumer then becomes the underwriter of the discovery process. If valuation is resorted to after discovery it must be on the basis that reasonable caution was exercised in exploration activities and that expenditures were governed accordingly. If the results warrant the investment the company will be permitted to receive a fair return on it. If they do not, then a fair return will not be allowed. The procedure is so conjectural that workable results are apt to be a matter of coincidence. Certainly the function of and responsibility for risk-bearing are not matched by the possibility of gain. Nor does there seem to be any effective incentive under these circumstances for efficiency and economy on the part of the producers.

The basic difficulty lies in the fact that the production of natural gas has none of the characteristics of natural monopoly that make it possible to regulate public utilities with reasonable success. The fact that some natural gas transmission lines own natural gas reserves does not impart to the production of the gas economic characteristics of a public utility nature. The process of producing natural gas does not possess these attributes. The workable, controlled relationship of prices and costs in the public utility field is not practicable here.[21]

If only arm's-length sales and purchases are excluded from regulation, those natural gas companies that have good luck, good management and fore-

[20] *Congressional Record*, Vol. 96, No. Mar. 20, 1950, pp. 3682-3.

[21] See *Natural Gas Investigation* (Smith-Wimberley), *op. cit.*, pp. 206-209.

sight are penalized. There is little incentive for efficiency in production and none for conservation. The companies would be foolish to run the risk of acquiring reserves. If they already have them, they would be foolish not to get rid of them, if they can. Better still, from their standpoint, they would be wise to retain the high cost reserves and dispose of the low cost ones so as to obtain more profits than would be allowed on the fair return basis. Regulation on the public utility basis of production and gathering of other than arm's-length transaction will result in this in the long run. If it is in the interest of public policy to separate the ownership of natural gas reserves from transmission, Congress should make a clear-cut declaration to that effect. If this is not desired, then the policy of pricing the gas from company-owned reserves on a different basis from that obtained from other sources will have to be discontinued.

If arm's-length transactions are not definitely excluded from regulation, then there seems to be little possibility of stopping short of regulating the production and gathering of all natural gas entering into interstate commerce. This would mean bringing all the major petroleum companies within the ambit of the authority of the Federal Power Commission. The Commission would have to examine the companies' costs, provide a valuation for the facilities used in the production of natural gas and assign costs to the regulated and non-regulated parts of the petroleum business. In the end, the Commission would find it necessary to regulate the entire production end of the petroleum industry as a public utility.

The pricing of gas at the producing end seems to be no different in its essential features from that of petroleum. Ascertaining the price to be assigned to gas produced by the natural gas companies is little, if at all different from that derived from arm's-length bargaining. The fact that so much is purchased under the latter circumstances is evidence of a wide market for the commodity. This market can be used as a workable gauge. In other areas of public utility regulation, the market gauge has to be used as much as possible and it is only because this cannot be done completely that public utility regulation exists. The market gauge can be applied to the determination of the price of the gas to be allowed the transmission lines, whether the gas is produced by them or purchased from others.

IV.

Under the Natural Gas Act the Federal Power Commission is given authority over all rates or charges made by any natural gas company for or in connection with the sale of natural gas subject to the jurisdiction of the Commission. The law also forbids any undue preference or advantage and any unreasonable differences in rates, service or charges. The law does not give control over direct sales by the Commission to consumers, thereby excluding direct industrial sales.[22] In fixing the fair return on the property used in making the sales over which it has control, the Commission finds it necessary to make some kind of cost allocation between regulated and nonregulated sales. At the same time it is faced with the responsibility of promoting within the limits of its jurisdiction, the most effective use of an exhaustible natural resource. This function is not spelled out in the legislation but the administration of the Natural Gas Act has brought this matter into front-line prominence in the current controversy.

[22] As I read the law, it does not give the Commission authority to limit the over-all return of natural gas companies to one that is fair. Nevertheless, the Commission has followed this policy.

The function of prices in economic activity is to allocate economic resources to their various uses. This is not the only method of allocation that is available and other devices may be adopted if for some reason the price mechanism is inadequate or unworkable. Even if price indicators are the principal means used to allocate resources, rules must be established and decisions must be made by the appropriate public authorities which will set the framework within which the pricing structure is permitted to fulfill is function.

When the price mechanism is operative, commodities or services are assigned to various uses by the prices they receive, those prices having the greatest attractive force being the ones that determine the allocation. Where this procedure is accepted it presupposes that competition is sufficiently effective to make allocation by the impartial mechanism of the market better than any other alternative. Even though decisions on economic matters may be made on other bases, the utilization of resources must take account of the effect of those decisions on those particular resources and on the economy as a whole. In so far as the decisions to be made are predominantly economic in nature, the price mechanism is the most satisfactory objective means of avoiding arbitrary or whimsical utilization. Outside of the purely theoretical realm of perfect competition, however, the price mechanism can operate only within established rules, the determination of which involves other considerations which may weigh heavily and may have a profound influence on economic life and policy even though, within the pattern thus established, prices are allowed a free rein.

If all costs were directly variable with output, and directly traceable to the products, the assigning of costs to output would present no problems. The presence of fixed and joint costs, however, makes rational allocation of all costs impossible. Under free pricing arrangements prices are determined by what the market will bring. Price will have to cover the direct variable costs of the product if it is to be forthcoming. The fixed and joint costs on the other hand, will have to come from whatever source is available to pay them. They cannot be assigned in any logical way for pricing purposes and relative prices in the market cannot be related to them. If a business wishes to maximize its profits, it will assign the direct variable costs and recover the fixed and joint costs wherever it can. A pricing policy which allocates these costs and then prices accordingly is an arbitrary procedure which ignores idle capacity and by-products.

When these principles are applied to a regulated industry, careful recognition must be given to the altered circumstances under which the pricing mechanism has to operate and to the objectives of regulatory policy. The Federal Power Commission is charged with the responsibility of seeing to it that rates are just and reasonable. The general assumption of such regulation is that profits have to be limited and discrimination kept within reasonable bounds. The problem, therefore, that faces the Commission is to determine what amount constitutes a reasonable revenue for a particular company and then, through the medium of rate structures, to distribute the burden among the various customers.

As has already been pointed out, the allocation of the burden of fixed and joint costs is necessarily arbitrary. When a firm is free to charge whatever prices it can get, the contribution to these costs comes from whatever source it can be obtained and allocation of the costs is not a part of the pricing process. When the

relative prices are fixed by public authority, however, the incidence of the burden of fixed and joint costs must be decided by the authority. The customary procedure is to allocate these costs on some basis of use of facilities and to adjust rates accordingly, provided of course, that each item of traffic is able to carry its assigned share. If this is not possible the costs will have to be recovered from the traffic that can carry them. To the extent that the latter procedure is employed it amounts to abandoning the allocation of fixed and joint costs. If the first one is adopted, then the allocation is arbitrary no matter how ingenious the engineering or accounting analysis may be.

When fixed and joint costs are allocated arbitrarily, policy considerations can and should be given the greatest weight. So long as the total revenue is being limited, the decision as to who should bear the burden of the non-allocable costs rests on judgment, not on any scientific objectivity of apportionment. Industrial users do not have any peculiar ethical or economic claim to relatively low rates merely because they utilize off-peak facilities. Nor does it seem reasonable that domestic consumption and other so-called "superior" uses should be burdened with most of the overhead merely because they can stand it, or because they are responsible for the peak load, unless such a rate policy is necessary because only a small contribution to overhead can be made by the other customers.

Because the earnings of natural gas companies are limited by regulation, the Federal Power Commission can use its authority over rate-making as an instrument of public policy on the use of natural gas. The benefit of rate reductions or the limitations on rate advances can be accorded to those uses regarded by public policy as the "superior" ones.[23] The so-called "inferior" uses can be required to carry all the burden of non-allocable costs they can stand. In applying this approach, the Commission would have to recognize economies from improved load factors. If, as has been reported,[24] improvement of the load factor above 60 percent does not make for pronounced reduction in costs, the cost advantages of a higher load factor may be outweighed by other considerations. Natural gas companies may protest against this kind of rate-making, but if they receive their fair return they do not seem to have a very strong case for objecting to the source from which it is obtained. Those desiring off-peak service will undoubtedly object, but the weight to be given to their views must be evaluated in the light of over-all policy considerations.

The procedure just set forth would assist in developing a rational conservation program. This kind of rate-making must, of course, take into consideration the conditions of production in the field so as to discourage the flaring or blowing of gas, but production merely for the purpose of satisfying lower-price uses could be effectively curtailed by rate policies at the distribution end. Such a practice could also be correlated with underground storage in consuming areas. "Dump" sales should not be permitted merely because they yield a profitable price to the producers of the gas in the field or because they are advantageous to the buyer. They should make a substantial contribution to the non-allocable costs even to the point of being required to carry their average share of this burden unless there are other compelling considerations to the contrary. If the choice

[23] This was the position of Mr. Justice Jackson in the Hope case.

[24] *Natural Gas Investigation, op. cit.*, (Smith-Wimberley Report), p. 292.

is that of making "dump" sales or other sales that do not assist materially in absorbing the overhead, or of wasting the gas in the field, then such sales would be desirable. If the choice is that of permitting sales that make only a slight contribution to overhead in order to reduce the burden on domestic and other firm consumers or to secure a reasonable profit to the company, the same remarks would apply. The reasons for such a policy should be compelling, however, and the burden of proof should be on those advocating it. Certification for expansion or new facilities should give serious consideration to the same items and every endeavor should be made to see that new expansion is predicted on sales that can carry their full share of overhead. The exhaustible nature of the natural gas reserves makes it desirable that immediate exploitation of them be limited by policies that subordinate the interests of a particular group of producers to the long-run interests of the economy.

V.

The tremendous expansion in the use of natural gas as a fuel in the last 15 years and the possible relatively short life of the reserves at prospective rates of use have resulted in the demand for the development of policies that will promote the most effective use of natural gas from the standpoint of long-run public interest. The Federal Power Commission has been forced to give consideration to conservation because of the impact of its decisions on the utilization of this resource. As a consequence, the Commission must try to evaluate the probable effects of its policies regarding the price to be allowed the producers of natural gas, certification of pipelines and the rates to be charged by natural gas companies as these matters relate to the exhaustion of reserves, the geographic uses of natural gas and the end uses.

The supply of natural gas like many other of our natural resources is highly concentrated in certain areas of the country. The utilization of the greater part of its requires transportation to markets which may be either distant or close at hand. If the gas is to be used as a source of power it must be moved to the place where other materials are readily available or they must be moved to it. The enormous expansion in output is chiefly the result of developing efficient means of transporting gas which has enabled it to compete with other fuels for a variety of uses.

If natural gas were produced only from dry gas wells without significant by-products, it would not be extracted in the the absence of markets. Because it is produced in connection with other products, however, it may be profitable and desirable to produce those products even at the expense of blowing or flaring the gas. When the decision is made to permit the production of these other commodities, the resulting dry gas must be returned to the ground, blown to the air, or sold. If for any reason it is not feasible to return it to the ground, then the sale of it for any use whatsoever at any price above the cost of making it available is economically justifiable.

If the gas is not being produced as a joint product other considerations will have to be given weight. Presumably, such gas will be produced only in response to market conditions. It is the responsibility of public authority to establish rules that will serve the objectives of conservation. For example, production in the dry gas fields might be restricted so as to raise the field price of gas sufficient to make the utilization of gas from oil wells not only profitable but even possible for higher priced uses than, say, for example, the manufacture of carbon black. Whether such a policy

would be workable or advisable will depend upon other factors to which consideration will be given later.

The general problem of conservation also has to take into consideration the institutional factors relating to ownership and the sources of supply. The greater part of the natural gas reserves of this country is in the hands of private owners. Furthermore, prime reliance is placed on private initiative for new discoveries of oil and gas. So long as these arrangements obtain, public policy on conservation will have to accord the owners the privilege of receiving profits from their property, if the market for the product will yield them. It will also have to permit property owners to share equitably in the markets. It may make uniform rules designed to promote healthy competition and this may eliminate some from the market, but that is the essence of competition which private owners must always recognize and face.

Although the sources of supply of natural gas are rather highly concentrated in certain areas, they nevertheless lie within the jurisdiction of a number of states. These states have a vital interest in conservation laws and in the utilization of the resources. Much of their economic growth has centered around the exploitation of oil and natural gas. Public policy for the natural gas industry must, therefore, be worked out in conjunction with the rights of the states. Both national and local interests have to be served and because they are at times in conflict with each other, have to be reconciled. A workable program of conservation requires cooperation among the states and between the states and the federal government. Failure to coordinate policy at these levels is not likely to lead to satisfactory results.

Within the setting of the technical conditions of production and the institutional arrangements affecting sources of supply, some general economic principles need to be given consideration. It is not sufficient to say that we should conserve our natural resources so that benefits from them will be available to future generations, nor to urge restriction of use now in order to preserve them for use in the years to come. Some more objective guide is necessary if a rational program is to be developed. Nor is it very meaningful merely to insist that the most efficient methods of production must be employed in order to secure the maximum recovery from a particular oil or natural gas field. The most efficient methods and maximum recovery have meaning only as they relate costs of production to the total value of the resulting product. In fact, it is not conservation but waste to compel the use of methods of production that result in costs that are greater than the prospective yield.

Conservation means the weighing of current use under currently available techniques of production against prospective future uses under unknown and uncertain techniques. If the value of the prospective future uses of an exhaustible resource discounted to the present is greater than the current value of the resource in its present use, then purely economic considerations would warrant postponing the use until a future date. Such an evaluation, except for a short period of time, is difficult to make and rests on a number of imponderables. The discounted value is a function of the rate of discount and of time. Market conditions and technology as of the time of the future valuation must be known or evaluated as "uncertainties." The effects of current use of technological and industrial development must also be evaluated. The use of a new source of energy

and fuel, such as natural gas, stimulates new lines and areas of development heretofore untouched and reduces costs in those areas previously dependent upon more expensive types of fuel. This may conserve other sources of energy, such as coal, for future use, at which time less costly methods of exploiting them may have been developed. The availability of lower cost alternatives may also act as a stimulus to more efficient production of existing sources. This is one of the important features of competition that public policy cannot afford to overlook when it is dealing with conservation.

The foregoing discussion is not designed as an argument against conservation of natural gas. It is advanced primarily for the purpose of highlighting some considerations within which the role of the Federal Power Commission must be evaluated. The states, singly, in conjunction with each other and in cooperation with the federal government should take every possible step to see that natural gas is not extracted unless there is a market for it. A certain amount of flaring is unavoidable, but if production from dry gas fields were restricted so as to increase field prices, encouragement would be given to the utilization of gas from oil wells. Because this type of gas is a joint and essentially by-product, conservation measures should be focussed on marketing it. This means that restriction of output, if it is to be used, will have to apply to the dry gas fields which will be called upon to supply the market demands not satisfied by oil-well gas.

In the interstate demand for natural gas, the Federal Power Commission occupies a key role. The market for such gas depends upon the facilities available for transmission and the price to be paid for the gas by consumers. There are three focal points at which the Commission can exert its influence on the marketing of the gas, namely: the price of the gas transported by the pipelines; the price policies at the distributing end; and the certification for construction and extension of facilities.

The field price of the gas which the natural gas companies transport is the decisive factor in determining whether the gas will be utilized or blown. The gas will not be blown or flared if a price can be obtained for it which will cover the costs of preparing it for the market. Higher prices are necessary if casing-head gas, now being wasted, is to be used. This would require a limitation on output from dry gas fields so that gas now being blown or diverted to lower priced uses could be marketed profitably. Such a policy would have to be applied reasonably and would have to correlated with proration and ratable take. If this were not done, the higher field prices would result in more production from lower cost sources and thus defeat the objective of providing a market for the gas which now lacks one.

The rate-making policies of the Federal Power Commission can be used to serve the same objective. The allocation of joint and fixed costs along the lines discussed in the previous section would help to bring the cost of gas for industrial uses more in line with competitive fuels and would aid in restricting demand. Pricing policies of this nature would have to be considered in relation to effects on pipeline efficiency and to the need for providing markets for gas that has to be produced continuously. Within these limits, however, they could go a long way towards channeling gas to higher priced uses and toward limiting wasteful short-run competition in the producing areas.

VI.

This paper has endeavored to deal with the problem of natural gas in the

setting of a market-oriented public policy. It is the author's view that this provides the only rational solution to the issues that are involved, and especially so if one assumes an economy based primarily on private enterprise.[25] The peculiar problems of natural gas and natural gas transmission impose severe limitations on the operation of competitive processes. At many points in the industry competition is an inadequate force and at some points direct competition does not exist. Public policy is called upon to make up for these deficiencies. This paper has endeavored to point out how this can be done within the framework of rationally conceived pricing policies.

If the proposals advanced are to be applied by the Federal Power Commission, an extensive overhauling of the Natural Gas Act by Congress is necessary. The regulation of production and gathering should be separated from the transmission of natural gas, even where transmission companies own reserves. This would give clear-cut recognition to the non-public utility aspects of the natural gas business and would prevent the Commission from applying public utility standards of regulation to this part of it. The Commission should be given control over all wholesale sales made by the natural gas companies and should be permitted to establish rate schedules in the interest of a public policy designed to promote the efficient production and use of natural gas. The Commission should be given control over all of the public utility facilities of the natural gas companies. Finally, it should be empowered to regulate the financial practices and security issues of these companies.

These would be only moderate and modest changes in the present law. If adopted, they would, however, accord to the Federal Power Commission, essentially the same authority now exercised by many state commissions over the public utilities under their jurisdiction.

[25] The author is convinced that attempts to deal with the issues on a physical basis outside of the price mechanism are totally unsatisfactory and doomed to failure. For example, the proposal that the exportation of natural gas from producing areas to areas which have other sources of fuel in order to compel industry to locate in the gas-producing states, is an unvarnished protectionist approach. (This is the burden of much of the Olds-Draper report on the Natural Gas Investigation). Carried to its logical conclusion it would mean that all states should keep their natural resources at home. How iron ore and coal could ever get together under such a policy is a mystery.

Critical Commentary on "The Natural Gas Industry: An Economic Appraisal of Public Policy"

MY comments here are restricted to Professor Pegrum's proposal for a "market-oriented," or price-implemented public policy for the conservation of natural gas. If this policy is efficacious in the case of natural gas it would, by logical implication and extension, appear to be equally appropriate for all other natural resources. Thus, Professor Pegrum poses an issue that is crucial for modern conservation policy generally. His recommendations may be summarized as follows: (1) Production and gathering should be separated from transmission and excluded from public control. (2) Field prices of gas should be raised by restriction of output in the dry gas fields. (3) Transmission and distribution should be regulated fully as a public utility. (4) Rate schedules should be adjusted, within the limits permitted by the market situation, to discourage waste and low-value uses on the part of consumers and to encourage conservation practices among producers. (5) By this two-pronged price operation—raising field prices and readjusting rates to consumers—effective conservation of natural gas can be accomplished.

Professor Pegrum's reliance on the price system to effectuate conservation goals is quite explicit. Conservation will be served, he says, if gas is extracted only when "there is a market for it"; the field price of gas is "the decisive factor in determining whether

the gas will be utilized or blown"; gas may be conserved by placing "a limit on consumption" through higher prices; proper price policy will direct gas to higher value uses; rate schedules can be used to "promote the efficient production and use of natural gas"; prices in dry gas fields should be raised to a level sufficient to make it profitable for oil companies to utilize their gas output for "higher priced uses"; "higher prices are also necessary if casing-head gas now being wasted is to be used. Higher prices are also necessary if gas is to be diverted to superior uses"; efficient methods and maximum recovery have meaning "only as they relate costs of production to the total value of the resulting product"; attempts to deal with the issue "on a physical basis outside the price mechanism are totally unsatisfactory and doomed to failure."

Professor Pegrum's economic reasoning in support of these propositions is consistent with general price theory but it is largely irrevelant because he misconceives the nature of the problem, erroneously regarding the conservation of natural resources as an issue susceptible of resolution in the private market place. Conservation is a social problem—not a private one; it must be analyzed in social terms—not in terms of private costs and revenues; it must be solved by social action directed toward social goals—not by private action motivated by individual self-interest. Professor Pegrum, in effect, denies these truths when he attempts to force the conservation problem into the narrow mould of the private market and to solve it by means of price adjustments.

This is a common mistake among economists. A review of the modern literature of conservation, and of public policy relating thereto, will disclose relatively few significant contributions by economists as contrasted with those of other disciplines. Here is an area of vital import to society where one might reasonably expect to find economists at the very center of the discussion. But such, unfortunately, is not the case; too many economists are indifferent to the problem, or are negative, or even hostile; others fail because they persist in the use of inappropriate analytical tools carried over from the private economy; still others prefer that nothing be attempted lest matters be made worse by further governmental intervention.

This failure of economists to exercise more constructive leadership in the field of conservation is explainable, if I may use a football analogy, by their propensity to be "mouse-trapped" by their predilections for the institutions of the private economy—i.e., private property, the profit system, free markets, free prices, pursuits of self-interest, competition, freedom from governmental control. Thus, when confronted with problems of natural resource utilization for the general welfare—these being public problems and not amenable to solution by private means—they react negatively to the challenge, either ignoring it as beyond their professional interest, or regarding it with hostility as a threat to private enterprise, or trying vainly to make it conform to laws of the private market. Until economists are prepared to recognize their social responsibility for devising solutions by appropriate institutional adjustments they can scarcely hope to escape from this dilemma.

Professor Pegrum, I fear, has fallen into such a trap. Having failed to develop a comprehensive, social theory of conservation, which would provide a more adequate basis for policy, and being unwilling to consider basic institutional changes in the industry, he must perforce cast about for some available substitute that appears plausible and possessed of some functional validity. This he discovers in the market and the price system, as modified by governmental regulation to counteract the effects of monopoly. Insofar as the general objective of his policy may be inferred it seems to be: *Get as much conservation as can be had from private enterprise through the price mechanism.* This is obviously a minimal and essentially negative program, which falls far short of being adequate in terms of modern, positive conservation theory.

There is no assurance, however, that even this minimal goal will be realized under the Pegrum proposals. He himself offers no such assurance—beyond the cold comfort of theoretical plausibility. During the past one hundred years we have exploited our natural resources under private enterprise and a free price system with devastating waste and inefficiency. What reason is there to suppose that this same system will now undergo some miraculous reform and reverse its whole pattern of behavior? Has not the modern conservation problem emerged as a critical social issue expressly because of the failure of

the price system to bring about satisfactory utilization of natural resources? In the absence of governmental power to compel performance—and no such power is provided—what reason is there to suppose that the recipients of higher prices, and presumably higher incomes, will suddenly become more efficient? Experience teaches us that they will almost invariably treat the increased income as a gratuity or treasure trove, appropriate it or capitalize it, and continue their wasteful exploitation of the resource.

The use of public utility price regulation as a conservation technique has little merit. In the restricted form specified by Professor Pegrum, it would operate only at the consumer end of a continuous process, whereas the basic problem of conservation centers in production. Thus, prices could be adjusted upward to limit consumer demand but there is no assurance whatever that this action would cause producers, who are to be immune from public control, to improve their methods of production so as to utilize gas more efficiently. Examples can be found among electric, gas and water utilities, where limited conservation effects have been achieved by this method but they are invariably minimal and incidental to the main purposes of public utility regulation. There is no case, to my knowledge, where significant, large-scale conservation results have been attained at the basic production level by public utility price regulation. It should be remembered in this connection that public utility regulation was established for purposes quite foreign to conservation of natural resources; that its powers and procedures are appropriate to its prescribed functions, but totally inappropriate for the new and vastly more complex function of directing the scientific utilization of natural resources.

I can only conclude that Professor Pegrum's undue reliance on the price and profit system to effectuate public purposes is really no public policy at all, and should not be dignified as such. Rather, it is more properly identified as private policy, supplemented by governmental sanction. Moreover, the proposals here advanced do not add up to a conservation policy, as that term is understood in modern usage. The modern concept of conservation is positive and direct, not negative and indirect; it is oriented toward maximum social welfare, not private profit; it proceeds toward these goals under its own motivation and through its own appropriate institutions, not through the institutions of the private economy; it involves systematic planning to raise the technical level of resource utilization to the maximum attainable with existing scientific knowledge; it calls for appropriate action at the basic institutional level to mobilize and direct the essential factors of a conservation program—capital investment, technology, organization, integration of functions, scientific research—toward approved social objectives.

Obviously such a conservation policy can never be established if government is powerless, if natural resources are held in absolute private ownership, if necessary institutional arrangements are lacking, if public policy must function exclusively through the price and profit system and if, as Professor Pegrum insists, all attempts to deal directly with the physical resource itself are interdicted. This last proposition in particular is objectionable to conservationists. The modern concept of conservation is synonymous with scientific utilization of natural resources—i.e., maximization of utility through the all-out application of the best scientific and technical knowledge. This requires that natural resources be dealt with in direct, physical, down-to-earth fashion. This principle is valid irrespective of whether a natural resource is exploited by private enterprise or by public authority. To deny this principle, as Professor Pegrum does when he abjures all direct, physical methods, is to repudiate the lessons of recent experience.

Had he examined critically this recent experience, both in natural gas and in comparable areas such as top soil, forests, water, coal, oil, grazing lands and minerals, he would have discovered that the decisive factors in the conservation of natural resources are capital, technology, organization and scientific research; that significant progress has been achieved only when these factors are effectively mobilized and directed toward carefully defined conservation goals; and that, in the absence of such an integrated program, little has been, or can be, accomplished by price manipulation, on which he places exclusive reliance. The price system is a vital institution in a free economy, and its proper functioning is essential to the successful operation of such an economy, but it cannot solve complicated social problems, such as the conservation of natural resources.

Modern society has many needs; some can be met through the price system better than any other way; others require social action outside the price system. We do a disservice both to the price system and to the public welfare when we fail to recognize this distinction and insist that the price system can and must solve problems beyond the range of its functional capacity.

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Commentary on "Introduction and Utilization of Natural Gas: The Wisconsin Experience"

IN the February 1953 issue of *Land Economics*[1] Henry J. O'Leary discusses the introduction and utilization, that is to say the distribution of natural gas in Wisconsin. It is obvious that the economic and legal problems arising from the distribution of natural gas are not nearly so interesting as those involved in the production and transmission of natural gas. The economic and legal issues relating to the production and transmission of natural gas and to the regulation of these phases of the industry have provoked acrimonious controversy which has persisted throughout the post-war period. The tempo of the debate has increased in direct proportion to the tremendous expansion of the industry. The Federal Power Commission is divided as to policy, and none of the important issues has been settled by definitive legislation or judicial decision.

No such provocative issues exist in respect to the distribution of natural gas. This segment of the industry is commonly regarded as a public utility service, as is the distribution of manufactured gas. The problems confronting state commissions regulating the distribution of natural gas are, therefore, for the most part precisely the same kind of problems that have faced these commissions in regulating the older and conventional public utlities.

In fact, in one respect at least, the introduction of natural gas has eased the task of state regulation. The wholesale price of natural gas transmitted in interstate commerce is fixed at the city gate by the Federal Power Commission, and the state commissions are thus relieved of the ever annoying proceedings incident to establishing a valuation for production facilities except where the claim is made that these facilities should remain in the rate base as stand-by property.

Nevertheless, the introduction of natural gas has created some regulatory problems. Natural gas is distributed by utilities, which had been manufacturing gas and which had been operating production facilities for the purpose. The question has, therefore, arisen as to what disposition should be made of these facilities for rate-making purposes after the advent of natural gas. Shall they be included in the rate base as stand-by equipment and shall consumers of natural gas be required to pay a return on the investment in these facilities and the expenses of maintaining them in addition to depreciation charges?

The Wisconsin Commission has apparently adopted a generous policy. Mr. O'Leary states that "almost any facility which was capable or could be made capable of producing a satisfactory substitute gas was allowed to be continued in service." This means that manufactured gas facilities are included in the rate base in Wisconsin, presumably as stand-by equipment.

This decision, however, does not seem to be a final determination of the issue as Mr. O'Leary states that "municipal authorities as well as the utilities and the Commission have been reluctant to gamble with possible service interruptions, at least in the first years of natural gas service."

The problem has confronted numerous commissions in states where natural gas has been introduced. (*Report of the Committee on Rates of Public Utilities to the National Association of Railroad and Utilities Commissioners*, 1950, p. 6). It came before the Pennsylvania Public Service Commission in 1936 in *Himes et al* v. *Pennsylvania Power and Light Company*, 15 Pa. P.S.C. 511, 534. In that case the Commission excluded the manufactured gas plant from the rate base in fixing natural gas rates on the ground that the plant would not have been built in the first place had natural gas been originally furnished rather than manufactured gas.

[1] H. J. O'Leary, "Introduction and Utilization of Natural Gas, The Wisconsin Experience," *Land Economics*, February 1953, pp. 13-22.

On appeal, however, the Superior Court reversed the commission (*Pennsylvania Power and Light Company* v. *Public Service Commission*, 128 Pa. Superior Ct., 195, 215 (1937). The court admitted that it was not the practice of natural gas companies to maintain an auxiliary plant for manufacturing gas and that such a plant was not necessary to safeguard the service in the event of breaks in the natural gas pipe line. But the court held that since the company's gas wells had an estimated life of only five years and that the company then would have to look to other and more distant sources of supply, prudent management required the preservation and maintenance of the plant. The court declared that the question was for management to answer and that the regulatory authorities could not properly interfere in the absence of evidence that the policy of management was improvident or wasteful.

The issue was also before the Supreme Court of the United States in *Los Angeles Gas and Electric Corporation* v. *Railroad Commission* 289 U. S. 287, 311 (1933). In that case the Court indicated that it may be proper to include the manufactured gas plant in a valuation based upon historical cost but not in an estimate of reproduction cost. Indeed the doctrine of prudent investment compels the inclusion of the plant in the rate base as the prudence of the investment at the time it was made can not be disputed.

From an economic viewpoint, however, the approach of the Pennsylvania Public Service Commission seems sound. The past can not properly influence price-making in the present, and the relevant question is whether or not the manufactured plant would be built today, if it did not exist, as stand-by equipment for natural gas. Nevertheless, the reluctance of the Wisconsin Commission to exclude manufactured gas equipment from the rate base is understandable, and since the policy appears to be limited to an experimental period it may be justifiable.

Mr. O'Leary's paper suggests another problem peculiar to the expansion in the use of natural gas. He asserts that unit costs of distribution decrease sharply with increased sales. Yet the space heating load is a seasonal one and adds to the daily peak, thus lowering the annual load factor. This must tend to increase the cost of gas distributed throughout the year. I wonder, therefore, whether an increase in the use of gas for space heating makes for lower costs and lower rates.

If space heating is responsible for the peak load, then we have a demand situation that is unique among public utilities. The demand for space heating is clearly elastic because of the availablity of other fuels. Elasticity of demand implies low rates whereas demand for the service at peak periods implies high rates. Low rates for peak users are both inequitable and uneconomical. It would be interesting to learn how this problem of the rate structure has been met in Wisconsin.

Finally, I should like to add that the introduction of natural gas in Pennsylvania from outside the state met with the same type of opposition as in Wisconsin. While natural gas wells in Pennsylvania have been in use for a long time and natural gas has been brought into the state from West Virginia long before the war, when natural gas was imported from the Midcontinent fields in the post-war period, mine operators, the United Mine Workers of America and the railroads acted in concert to prevent its local distribution. It was only by a vote of 3 to 2 that the Pennsylvania Public Utility Commission permitted the gas distributing utilities to extend their services by furnishing natural gas. (Application of the Manufacturers Light and Heat Company et al 28 Pa. P.U.C. 406 (1950).)

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From the Editor's Desk

A SURVEY into the use made of *Land Economics* by its readers has brought forth noteworthy facts. The purpose of the survey was to determine, if possible, whether the magazine is as valuable a source of reference to scholars and students as its board of editors, editorial council and its founders have believed it to be.

The technique followed was direct and simple. Individuals, research organizations and university groups known to be carrying current and back copies on their library shelves were invited to evaluate the magazine's use in terms of their own professional patterns. The results show clearly that the magazine is recognized as a scholarly publication without peer in its field: it does have direct and valuable use for scholars and technicians in planning, housing and public utility economics. Statements printed on the other side of this sheet are testimonial of this fact.

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